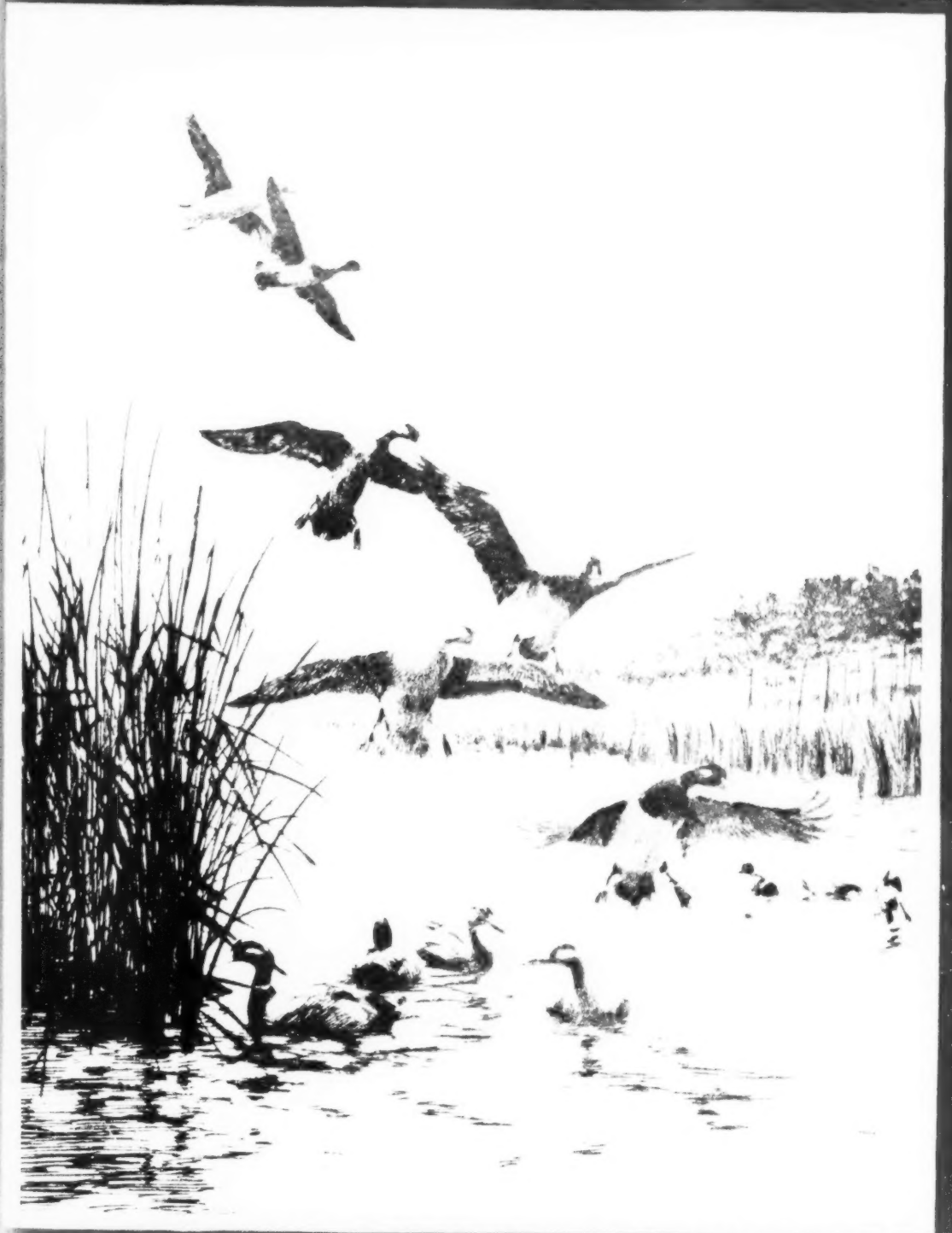
AMERICAN FORESTS



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EDITOR
Ovid Butler

ASSOCIATE EDITORS
Lilian Cromelin
Erle Kauffman

COMING

So that the readers of AMERICAN FORESTS may know in detail the great tragedy that befell millions of trees in New England during the recent hurricane, it was necessary to hold Archibald Rutledge's magnificent story *God's Gleaners* over for the December issue. It will be in lead position in the Christmas number. Don't miss it.

In the Christmas issue also will be two other writers well known to readers of AMERICAN FORESTS—Grif Alexander with a fine bit of writing, *Evergreens,* and Genevieve Monsch, whose story of holly last year attracted so much attention, and who this year gives us the *Story of Mistletoe.* And if you think that this is not a fascinating article, one full of surprises, just wait until you read it.

There will also be *Defending the Lion,* by Lloyd G. Ingles; *Ties for the Rails of India,* by Maclaglan Gorrie; *With the Colorado Trail Riders,* by Mary Ruffner; *Desert Christmas Trees,* by A. Dell Roensch; *Tung Oil Comes to America,* by Roy L. Pepperburg, and others.

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Member A. B. C.

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READERS' FORUM

SPEED OF NEW ENGLAND HURRICANE

Sir: Since you will probably feature the New England hurricane in the next number of AMERICAN FORESTS, you may be in need of some factual information on the actual measured wind velocity in the path of the hurricane.

If this is the case, you will be interested to know that the Mount Washington Observatory, near the center of the White Mountain National Forest, has reported the following official velocities on September 21:

Heaviest gust—162 m.p.h. at 6:00 p.m.

Highest 5-minute average—136 m.p.h. at 5:15-5:20 p.m.

Maximum 60-minute average—118 m.p.h. at 5:00-6:00 p.m.

Of course, these readings were made on a mountain top but they do give some idea of the force of the wind—an average of two miles a minute for a full hour.

Incidentally, the maximum gust velocity is not the highest recorded since the Mount Washington Observatory was established in October, 1932. A velocity of 231 miles per hour was recorded on April 12, 1934, which has been accepted as the maximum free air movement ever measured.—*Charles E. Randall,* U. S. Forest Service, Washington, D. C.

BIG GAME HUNTERS PLEASE NOTE

SIR: My attention has recently been drawn to more than one attempt by advertisement and otherwise to entice overseas sportsmen to the Union of South Africa with promises of facilities for big and small game hunting. These promises are couched in language that is unjustifiably optimistic, not to say misleading.

There is still much good hunting to be had in many parts of South Africa but mostly on privately owned farms where in many cases game is carefully preserved.

Speaking generally game is to a great extent strictly protected by law throughout South Africa, particularly in the Transvaal, and permits for shooting certain species of game are only granted in those districts where those particular species are fairly numerous.

Roan antelope are being strictly protected everywhere. Only in special circumstances will permits be issued for shooting oribi, reed buck and sable antelope. Permits to shoot wildebeest, zebra, kudu, impala, and waterbuck are only issued in those districts where these animals are sufficiently plentiful. Permits to shoot elephant, hippo, rhino and giraffe are not to be obtained.

Even a farm of 10,000 acres well stocked with game might easily be deserted by game, other than birds, after a week or two of intensive shooting and disappointment is bound to be the lot of many who come to South Africa on the strength of such promises.

The Wild Life Protection Society of South Africa, of which I am secretary, is prepared to give advice on game to any one who desires to visit the Union of South Africa on a shooting trip. — *J. W. H. Wilson,* Johannesburg, South Africa.

FORESTRY AND SOCIAL ECONOMICS

SIR: In the July number of AMERICAN FORESTS you have an editorial (First Things First) commenting on a speech of Governor Benson of Minnesota at a recent forestry conference in St. Paul.

You say that you have "trouble squaring with good, social economics" the Governor's proposal to increase the harvesting of state timber up to the present sustained yield capacity of state timber lands. Throwing an additional 50,000,000 or 100,000,000 feet of Minnesota timber upon the market would have the eventual effect you say, of putting men in other parts of the country out of work. You refer to "an already overloaded market." You say the plan may be good economics for Minnesota "but how about the rest of the country?"

Looking ahead only a few months, the answer to your question may be that an immediate increase in the amount of timber business in Minnesota would mean reduced business in other states. But, if we are going to think in terms of "social economics," we have got to think ahead more than a few months. We have got to think of the need of people who are not now able to buy timber products. We have got to think of the third of our population for whom the providing of good housing would mean a tremendous increase in the market for timber products, for whom a decent income would mean a tremendous increase in the buying of other wood products, such as books, magazines, newspapers. America's problem is to produce more and not less, as rapidly as we can increase the purchasing power of the people so that they can buy more. Out here in Minnesota we have hopes that the purchasing power of the people can be increased. Therefore we are planning on ways and means of increasing production. That is what our Governor had in mind, I am sure, when he pointed to the possibilities of increasing the volume of state timber put on the market each year.

Another thing to think about when we talk "social economics," is that this marketing of Minnesota timber on a sustained yield basis would not be in competition with legitimate, sustained yield timber operations, but, to a large extent, with cut-out-and-get-out timber cutting that is eating the economic foundations out from under timber communities in the Northwest and elsewhere. If there is anything in forestry which does not "square with good social economics" it is the kind of cutting that is being continued on a large part of our private timber lands, and not the long-time planning for sustained yield timber production on publicly owned land. —*E. A. Foster,* Director, Division of Forestry, St. Paul, Minnesota.

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President, The American Forestry Association, 1909-1910

■ Governor Guild followed James Wilson in office as president of the Association. He was elected at the 28th annual meeting held in Washington, D. C., January 14, 1909. Born in Boston February 2, 1860, he died there April 6, 1915. A conspicuous figure all his life, he was a leader in college and later in public and private life. Unusually versatile, his chief interests and public concern lay in the literary, military and political fields. A genuine patriot, he was the first volunteer from Massachusetts in the Spanish-American War, serving as Lieutenant-Colonel in the Seventh United States Army Corps, that of Gen. Fitzhugh Lee.

In civil life, he was connected with his father's newspaper, the *Commercial Bulletin*. A Republican and orator, he participated actively in political affairs, taking the stump in recurring campaigns and presiding at state and other conventions. In 1900 he spoke, with Theodore Roosevelt, in the mining camps of Colorado, and throughout the extreme West. He was in due course elected Lieutenant-Governor of his state, serving in 1903, 1904 and 1905. Being elected Governor in 1906, he served in 1907 and 1908. Retiring, he returned to his editorial work, leaving this again when he was appointed special ambassador to Mexico and later, in 1911, Ambassador to Russia, which post he held until 1913.

During President Guild's administration, the long desired Federal legislation for the creation of Appalachian and White Mountain National Forests received great impetus. Deeply interested in this project, which meant much to New England and the Eastern section of the country, he led an aggressive campaign in its behalf. The first bill was introduced in the 56th Congress in 1900, by Senator Pritchard of North Carolina —followed by many introduced in the years intervening between then and 1911, when the so-called Weeks Bill finally was enacted. Governor Guild, as President of the Association, took a militant part, for the Association, with its headquarters in Washington, was the hub of the wheel from which the campaign was waged. This campaign for eastern national forests still holds the record as the longest and most bitterly-fought for Federal Forest legislation, and its importance to the East is being increasingly felt even today.

Curtis Guild, Jr., eleventh President of the American Forestry Association, was a man widely known and loved, not only in his own state but nationally. He was committed, heart and soul, to the cause of conservation and his enthusiasm and helpful interest were rooted in the public weal, for which he labored unceasingly.

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THE EDITOR'S LOG

WHY DO so many people exercise caution with fire in their homes and immediately chuck that same caution out of the window when they go into the woods?

The correct answer is worth millions of dollars to the people of the United States. And for lack of it, forest fire prevention agencies are backed into a corner of frustration. For thirty years they have drummed "care with fire in the woods" into the American public and yet the number of forest fires caused by public carelessness continues to rise. Fire prevention preachments, the record would seem to show, deter about as many people from the straight and narrow path of fire rectitude as an old-fashioned sermon on "Hell and Damnation." Foresters as mass public educators apparently just haven't had the stuff on their propaganda ball. They have missed that human something that penetrates the mass mind and strikes emotions that control actions.

The Forest Service, in a spirit of commendable progressiveness, has gone in search of that something and has called to its aid the science of psychology. For eight months Dr. George P. Shea, an eminent psychologist, has been appraising the problem as one of human behavior. He has visited most of the important forest fire regions of the country studying the local people and their customs and has interested a number of well known psychologists of the country in the problem. Certainly if the psychologists can give the foresters the right educational twist to public fire prevention, they will open a jammed gate to progress not only in the fire field but in virtually all other fields of conservation where public education is called for.

In an early number of AMERICAN FORESTS, Dr. Shea will give his appraisal of the problem from the viewpoint of the trained psychologist, who, it is not too much to say, may prove to be the answer to the forester's prayer.

* * * * *

The New Deal philosophy that the means justify the ends seems to be finding expression today in the circuitous routes by which new National Parks are being made. Isle Royale set off in the icy waters of Lake Superior north of the upper peninsula of Michigan is a case in point. Back in March 1931, Congress passed an act which provided that the island should become a National Park contingent upon the lands costing the people of the United States nothing. The State of Michigan subsequently made efforts to raise the money to buy the lands to deed them gratis to Uncle Sam but with little success.

So Isle Royale as a National Park seemed to be blacked out for lack of a "Money Angel" until the New Deal came along and found a formula by which to put the "M. A." label on Uncle Sam, the Act of 1931 notwithstanding. The formula was simple: if the Act of 1931 prevents spending federal money to buy the lands for park purposes, which it does, the more recent Emergency Conservation Act establishing the CCC does not, *provided* the lands are needed as a CCC worklot "for conservation or forestation purposes."

Q. E. D. In due course there came from the White House an executive order allocating emergency conservation funds for the acquirement of lands on Isle Royale to provide CCC labor for conservation and forestation purposes. Later, having acquired substantial holdings under this authority, the wheel of formulas was given another turn and out of Congress on June 20, 1938, came a bill declaring that all lands acquired by the government on Isle Royale "for conservation and forestation purposes" shall become a part of the Isle Royale National Park.

The record today shows that almost $800,000 of CCC money will have been spent in acquiring 133,400 acres of Isle Royale and that two camps of two hundred CCC boys have labored three summers there "erecting headquarters, constructing boat landings, establishing buoys along the water front and preparing necessary trails."

And incidentally, the Park Service has its Isle Royale National Park!

Ovid Butler

Editor.

WHEN THE FULL FORCE OF A RAGING TROPICAL HURRICANE STRUCK NEW ENGLAND WITH DEADLY FORCE, DEVASTATING THE COUNTRYSIDE — ALREADY RAVAGED BY FLOODS — SUCH SCENES AS THIS IN A RESIDENTIAL STREET OF WORCESTER, MASSACHUSETTS, WERE TYPICAL OF MANY SECTIONS OF SOUTHERN NEW ENGLAND

Courtesy Worcester "Gazette"

AND WHEN THE WINDS AT LAST WERE STILLED, MERCHANTABLE TIMBER IN OUTLYING FORESTS LAY PRONE LIKE IN MASHAMOQUET BROOK STATE PARK, IN CONNECTICUT

Connecticut State Park and Forest A

NEW ENGLAND'S STORM-STRUCK TREES

By OVID BUTLER

THE HURRICANE which came up the Atlantic Coast and turned inland at Long Island on September 21 to slash its way through the heart of New England has gone down as a major storm catastrophe. Not the least of the destruction left in its wide swath through Connecticut, Massachusetts, Vermont and New Hampshire was in the form of uprooted, broken and shattered shade, street and forest trees. The full extent of the damage is yet to be told. It is so extensive that weeks will be required for a reliable inventory.

Preliminary estimates of the total amount of timber felled by the hundred-mile wind in forests and woodlots ranged from four to five billion feet—almost one-fourth the merchantable growing timber in the four states. Much of the best white pine timber in New England is down. The number of street and ornamental trees destroyed and injured will run into the hundreds of thousands. The loss of esthetic values represented by such trees is incalculable and the cost of removing them from yards, streets and highways is proving a tremendous expense to the communities and states involved. Much of the blow-down timber in the forest, however, has a salvage value provided it can be lumbered quickly and markets for it found.

Dismayed and staggered by the suddeness and fury of the storm, New England came to the morning of September 22 to find its storm-struck towns and countryside littered with fallen trees. Whole areas of forests in some sections were levelled almost completely. In many towns, houses, automobiles and telephone lines were crushed by falling trees. Both rural highways and city streets were blocked by tangled masses of tree trunks and limbs. The photographs accompanying this article depict scenes common throughout the hurricane area and give some idea of the fury of the wind and its toll of tree destruction.

Preceded by days of heavy rains of flood-making proportions, the hurricane caught the trees in susceptible condition for blow-down, roots and all. But where the roots held, the wind snapped trunks or tore great

Wide World Photo

During the heavy gale great trees were uprooted and, in falling, blocked highways and wrecked cars and homes. Fortunately, this car, at Redbank, New Jersey, was unoccupied at the time the falling tree crushed it

TYPICAL SCENES—

Left—A falling elm wrecked this cottage on the outskirts of Rockville, Connecticut

Below—A house in Petersham Forest, literally buried in debris

Soil Conservation Service

Hames' Studio

Right—A street in Brooklyn, Connecticut, after the hurricane struck. The street is minus its trees, the church is minus its steeple and the monument is minus its soldier

Connecticut State Park and Forest Association

Right — Paper birch down in a Northern hardwood stand — blocking a beautiful forest road in the Gale River Experimental Forest in New Hampshire

U. S. Forest Service

Below—Row on row the fallen trunks lie in Harvard Forest

Hames' Studio

Left—Even-aged spruce on the Cherry Mountain Sale Area in New Hampshire, one hundred years old, laid low by the hurricane which decimated New England's trees

U. S. Forest Service

limbs from the crowns. From the standpoint of timber losses, New Hampshire and Massachusetts suffered most heavily. It is estimated the down timber in New Hampshire amounts to over a billion and a half feet—of which more than one billion feet is white pine. The White Mountain National Forest in that State reports a blow-down of two hundred million feet within the forest. More than ten thousand timber-owning individuals and companies, it is estimated, have sustained losses.

In Massachusetts, estimates of down timber run as high as three billion feet, although the Conservation Commission at the time this was written was unwilling to hazard even an approximate estimate. State Forester Cook, however, reported that of the three million acres of forest land in the State, the blow-down on two million acres was very heavy. In Vermont, timber companies reported that twenty per cent of their standing timber is down. Others reported higher percentages. The old maple sugar orchards for which the State is noted suffered heavily.

Connecticut, according to early estimates, lost almost one-quarter of its standing timber, the blow-down ranging from one per cent in the western part of the State to as high as seventy per cent in the eastern section. The State of Maine escaped the brunt of the hurricane and therefore its timber loss was small compared to the other states. Preliminary estimates placed it at one hundred million feet, largely white pine. New York likewise escaped heavy losses of timber trees, although the destruction of shade and street trees on Long Island was great.

Experimental forests and recreational areas throughout the region suffered very heavily. The Harvard Forest at Petersham, Massachusetts, lost virtually all of its merchantable timber as did the Mt. Toby Experimental Forest at Massachusetts State College. Yale's Experimental Forest at Keene, New Hampshire, likewise was hard hit. In famous Franconia Notch and Crawford Notch the timber on mountainsides was virtually stripped clean and piled in tangled heaps on roads below. The Arnold Arboretum reported approximately fifteen hundred trees blown down, among them some of the oldest, largest and rarest in the Arboretum. The loss of old historical elms for which New England is noted is unknown. The famous elm at Wethersfield, Connecticut, largest elm in the United States, withstood the storm but had a number of large branches torn from its crown.

Dr. E. P. Felt, Director of the Bartlett Tree Research Laboratories at Stamford, Connecticut, after a survey of a portion of the storm area, estimates that over a million shade and street trees were destroyed or damaged by the wind. His estimate does not include

New Hampshire State Forest Service

Great elms on the Square of the State Capitol at Concord, New Hampshire — victims of the storm. This illustrates the loss, in the stricken area, of the historic and ornamental trees for which New England is famous

the millions of trees planted on watersheds or in forest areas. The greatest shade tree damage, he reports, was along the coast of Long Island, particularly the eastern end, in southeastern Connecticut and Rhode Island, extending northward east of the Connecticut Valley into portions of Massachusetts. Shade tree damage likewise was very severe in portions of New Hampshire and Vermont.

Faced with a staggering task of clean-up and rehabilitation, the states aided by the Federal Government set to work at once to clear streets of fallen trees in cities and towns and to open highways in the country. On the heels of the hurricane came the danger of forest fires in that the high wind dried out the tangled masses of timber and created highly hazardous situations. Later rains brought some relief on this score but the possibility of a dry fall keeps this specter of fear always in the foreground.

To organize for fire prevention and timber salvage, state foresters of New England met with representatives of the United States Forest Service on October 3. Shortly afterwards, the Forest Service established an emergency office in Boston. In addition, forty-six CCC camps have been thrown into the task of clearing trails, reconstructing telephone lines and rebuilding fire towers in preparation for possible outbreaks of forest fires.

Although the forest fire hazard is great, the most urgent immediate problem is the creation of agencies to advance funds to the thousands of small woodlot owners who must salvage their down timber as soon as possible or sustain a complete loss of its values. Unless the white pine is removed by the middle of next May, its value for lumber may be ruined by disease and insects. The physical problem of removing and marketing so much timber in so short a time is enormous. Its magnitude is indicated by the fact that the hurricane within a few hours felled timber equivalent to probably a ten year's normal cut in the states concerned.

Connecticut State Park and Forest Association

A fine stand of hemlock timber at Mashamoquet Brook State Park at Pomfret, Connecticut, before the hurricane and — at the left, the same beautiful stand, — gone with the wind

Reports received from state foresters ten days after the storm describe conditions in more detail in their respective states. Their estimates of timber losses are, of course, preliminary and tentative.

John H. Foster, State Forester of New Hampshire—"The total amount of down and uprooted timber in New Hampshire is estimated at 1,600,000,000 board feet, of which 1,200,000,000 represents pine and the balance other softwoods and hardwoods. This does not include down timber on the White Mountain National Forest, which has been estimated at 200,000,000. This represents the normal lumber produced in this State for at least a ten year period. Our endeavor has been to determine the amount of merchantable timber which might be salvaged in the next nine months but we are confident that the estimates as given include much more than can probably be salvaged.

"The greatest damage appears to have been in the

counties of Cheshire, Hillsborough, Merrimack, Sullivan and Grafton, all in the southwestern or central parts of the State. Considerable damage, however, has been sustained throughout the State including the extreme northern portions of Coos County. The stumpage loss will exceed $5,000,000. The loss from disruption of forest activities due to the amount of merchantable timber destroyed and which must be thrown on the market is tremendous. The loss to recreational business is also very great.

"Timber destroyed in general represents the best within the State, particularly white pine which has been held by schools, colleges, private estates, public parks, recreational areas and lake shore resorts. That the loss to farmers and woodlot owners is tremendous may be shown by the estimate of landowners concerned which is 10,750. This information, of course, has no reference to shade and ornamental trees along highways and on private property uprooted by the wind. In many towns and villages the percentage of down trees runs from ten to fifty per cent. There are, of course, protected areas and localities where the damage has been relatively slight. Sugar orchards have suffered severely in spite of the fact that sugar maples as ornamental trees appeared to have suffered less than elms and other trees. A preliminary estimate indicates seventy-five per cent of sugar orchards badly injured.

"We have been dealt such a staggering blow to our forests and recreational interests that people are dazed and only now beginning to realize what has happened. The loss represents in many instances the principal wealth possessed by small farmers and woodlot owners who have looked forward to benefiting from the timber in their old age. Many are unable to finance operating costs and should be able to receive loans in order to participate in the salvage of their timber. It is too early yet to know how these problems may be solved, but we do know that much of this timber must be salvaged before next summer. To bring about the orderly marketing of at least a billion feet of the best timber in New Hampshire will require time and the best talent that can be given to the effort.

"However, clean-up has already begun and all forest and lumbering interests have joined hands in attempting to find the solution of the timber salvage problem. A committee representing all these interests has been established to cooperate with similar committees in other New England states."

Ernest J. Dean, Commissioner of Conservation of Massachusetts—"The hurricane of September 21 combined with an extreme flood and tidal wave, did enormous damage to property, forests and ornamental trees in this State. Property damage resulted largely from flood waters and tidal wave. Damage to trees was the work of wind which reached a velocity of well over one hundred miles an hour.

"Wind damage extends over the entire state but is most severe in the region east of the Connecticut River. In every city, town and village, hundreds of our finest shade trees, especially our fine old elms, are down. The larger and taller the tree the quicker it went down. Small to medium size trees stood, although they lost many limbs. As examples, Springfield reports 16,000 trees down; Newton, near Boston, reports 8,000.

"Forest damage occurred to some extent all over Massachusetts east of the Connecticut River, but the most serious damage occurred in the central part of the state which includes Middlesex and Worcester counties, and those portions of Franklin, Hampshire and Hampden east of the Connecticut River. In this region almost every stand of merchantable pine is flat, and even stands of young pines, including plantations in exposed situations, were levelled. Hardwood stands were less seriously affected, but even hardwood forests are full of broken tops and branches.

"Besides the enormous loss in forest values, there has, of course, been a great fire hazard created. Through the help of CCC camps and by direct action of this Department, we are endeavoring to meet the situation on our state forests, but the problem on the hundreds of thousands of acres of private forest land seems almost impossible to be solved.

"As an interesting sidelight on the force of the hurricane I might add that ten of our steel fire towers were blown down."

Austin F. Hawes, State Forester of Connecticut—"The hurricane which hit Connecticut September 21, 1938, did some damage all over the State but by far the hardest hit area is that east of the Connecticut River with the most severe damage in the southeast section. The best available estimates indicate 500,000,000 board feet down or damaged, 13,500,000 board feet of which are on the 80,000 acres of State Forest. Since most of the damage was to trees twelve inches and larger, the estimate is probably conservative as it is based on trees eight inches and over but applied only to trees twelve inches and over. The pine and hemlock was particularly hard hit with practically all of the mature pine being down. Plantations fifteen years and older suffered severely. The Shaker Pines and the Rainbow experimental plantings were heavily damaged,—the Shaker Pines practically being wiped out. The hardwoods of all kinds suffered,—the tulip particularly as it was generally taller than the others but since tulip forms only a small percentage of the stand, the bulk of the damage was in oak, birch, maple and hickory.

"By counties the estimated windfall is: Litchfield, Fairfield, Hartford, and New Haven, each one per cent; Middlesex fifteen per cent, Tolland thirty per cent, Windham seventy per cent, New London seventy per cent—State average (*Continuing on page* 527)

LATE ESTIMATES

Latest estimates of the merchantable timber blown down in New England forests by the hurricane are given below. They still are not final. They were obtained by wire on October 11 just as this number of the magazine was going to press.

	Softwoods In Board Feet	Hardwoods In Board Feet
New Hampshire	1,400,000,000	212,000,000
Massachusetts	1,300,000,000	90,000,000
Connecticut	150,000,000	110,000,000
Vermont	120,000,000	111,000,000
Maine	112,000,000	None
Rhode Island	51,000,000	4,000,000
New York	5,000,000	58,000,000
Total	3,138,000,000	585,000,000

The estimated stumpage value of the down timber believed to be salvageable is placed at $11,500,000; its manufactured value, $60,000,000. The difference between the two values—$48,500,000—represents the productive employment which prompt and adequate salvaging operations would provide.—EDITOR.

Downtown Cincinnati during the flood of 1937. Organized flood forecasting is designed primarily to safeguard the big cities on our larger rivers, where great invested wealth is concentrated

DEFEATING THE FLOODS BY PREPAREDNESS

Modernized Forecasting An Essential Link In Organized Protection Against Flood Losses

By MERRILL BERNARD

Chief, River and Flood Division, United States Weather Bureau

THE trite paradox that if we had more floods there would be less flood damage has a basis in fact. What is meant, of course, is that if floods of damaging proportions visited our valleys frequently we would methodically provide, in our regime of living, for protection of property and the evacuation and care of stricken populations. Viewing the situation in its country-wide aspect, we do have enough, and more, of flood experiences to warrant a national concern in the matter. Indeed, that consciousness is rapidly taking on the proportions of national policy, supported by authorized planning for the control and regulation of floods.

The average annual cost of flood damage in this country exceeds $100,000,000. The average loss of life resulting from floods is nearly one hundred. The immediate objective of flood control planning is to reduce these staggering figures. Flood losses are usually associated, in the public mind, with the great river floods of 1937, '36, '27, '13, and back to 1884, when the first of the national flood disasters of our official record occurred.

The situation can be better understood, perhaps, by an inspection of the table on the following page. Here it is noted that hardly a month passes in which, somewhere in the country, there is not a destructive flood. In the 168 months in this record, property damage and loss of life were reported to the Weather Bureau in all but fifteen. Though the accounts of many of them were relegated to the back pages of our newspapers, their local and regional significance was as high proportionately as the more spectacular major floods.

We see only too often, after a flood has passed, the reaction of the public mind to a fallacious and dangerous optimism about the future—now that the flood is over, and homes and property rehabilitated, induced poverty and hardship are to be forgotten as quickly as possible. What accounts for this? It cannot be that the cost is not a very real one; it is both real and great, and it is borne directly by the individual and the taxpayer in dollars and cents. The explanation cannot be that violent death, permanent impairment of health, loss

of estate, and social maladjustment have not left their mark, for these misfortunes are visited upon thousands of families in flooded valleys every year. The answer lies, no doubt, in the fact that human beings quickly adjust themselves to misfortune and accept too willingly the illusion that it will not happen again.

This discussion is not concerned with the control of floods or the removal of flood hazard. Many situations can be met, within justifiable cost, in the construction of control and protective works. Others will be improved through corrective land-use practices. It is reasonable to assume, however, that man must always pay to Mother Nature a rental for the occupancy of the river valleys she has made to carry her flood waters to the sea. The payment now stands, and to a great extent always will, in the form of costly evacuation, relief and rehabilitation. Can the rental be reduced? One possibility is to be discussed here—that of a modernized warning and forecasting service.

Loss of Life and Property from Floods in the United States for the years 1924-1937, inclusive

Month	Property Lost	Lives Lost
January	$ 30,684,000	14
February	833,000	1
March	13,003,000	6
April	30,126,000	26
May	4,459,000	12
June	7,620,000	11
July	4,048,000	7
August	1,916,000	2
September	2,073,000	3
October	2,093,000	1
November	3,701,000	1
December	1,626,000	2
Monthly average	8,515,000	7
Annual average	102,182,000	90

The function of such a service is to deal not with the effects or control of floods, but with their prediction, both as to magnitude and time; and past experience, which has proved conclusively the value of these predictions, indicates with equal clearness possible improvements in procedures and techniques of immense potential value to the nation. Escape is not the only thing implied in a flood warning: protection is implied as well, and even more emphatically. "To be forewarned is to be forearmed" applies to floods no less than to fires and other disasters. As the service now is, extensive savings are accomplished: With advance warnings, farmers move their livestock from low-lying pastures; storekeepers put their perishables in attics; railroads move loaded cars from threatened yards; warehousemen, merchants, manufacturers strip their lower floors of goods and machinery; lumbermen secure their stocks; highway travel is re-routed, and river traffic changed to meet the situation. Yet, as pointed out above, the losses are tremendous. This article is concerned with possible means of their reduction.

Organized forecasting of river stages and flood crests was begun by the Weather Bureau nearly fifty years ago. The service was designed to safeguard the larger cities on the Ohio, Mississippi, and Missouri Rivers, where great wealth has been concentrated on the very banks of the river channels. Later this service was extended to the larger tributaries, until today there are about seventy river forecasting centers from which forecasts and warnings are issued to over 1,000 cities, towns, and communities. The service, conducted so long as an established function of the Weather Bureau, is not spectacular and is taken by the public as a matter of course. Its difficulties are less well known. Inadequate facilities for gathering rainfall, streamflow, and gage height data impose an undue dependence upon the personal judgment of the forecaster; failure of communications with outlying reporting stations in critical periods immeasurably increases the difficulties of accurate prediction. These, together with the tremendous pressure of public and private interest, combine to create a situation that is far from conducive to efficient estimating. For example: the Weather Bureau Office in Pittsburgh, during the peak of the March, 1936, flood, disposed of nearly 8,000 telephonic inquiries in one day. Few people understand or appreciate the terrific strain under which, in such a flood as that of January, 1937, this work is done. It has been done, however, and well, thanks to the personal familiarity of forecasters with their river systems and to the fortunate circumstance that stages on the larger rivers relate themselves with fair consistency in every flood. Under a procedure resting largely on these two factors it has been possible to provide reasonable opportunity for preparation at points on the lower reaches for oncoming inundations.

Had flood warnings been properly heeded here, this storekeeper would have raised his stock to a higher floor level and the industrial loss of highly valuable foodstuffs avoided

There began in 1935, however, a series of floods, culminating in that of January, 1937, that brought to public attention the need for a more adequate service on the many important headwater and tributary basins. The service as it was then organized had reached as far upstream as facilities would allow—that is, to the point where an upstream river stage did not

Photograph by The American Red Cross

Unprepared and disorganized, these flood victims suffered unnecessary losses. With flood control forecasting modernized and organized, home owners would be fore-armed because fore-warned, and measures could be taken to save much of the destruction so poignantly revealed here

The extent of damage by flood to this industrial plant—the press room of a large novelty company—could certainly have been reduced by inexpensive protective measures, had flood warnings been regarded

reflect accurately the stage to be expected at a point below. The forecaster had always taken rainfall into account in his estimating, but had neither the means of receiving prompt reports of rainfall over the basin nor a method of converting it quantitatively to streamflow. On the smaller rivers particularly, occupants of the lowlands suffered from the limited service, for they were not usually accessible to the centers of information and had, to a great extent, to shift for themselves. In all, it has been a matter of considering the more frequent lesser floods as involving no public responsibility, and the rare great floods as being Acts of God, beyond mere man to forecast and to prepare for.

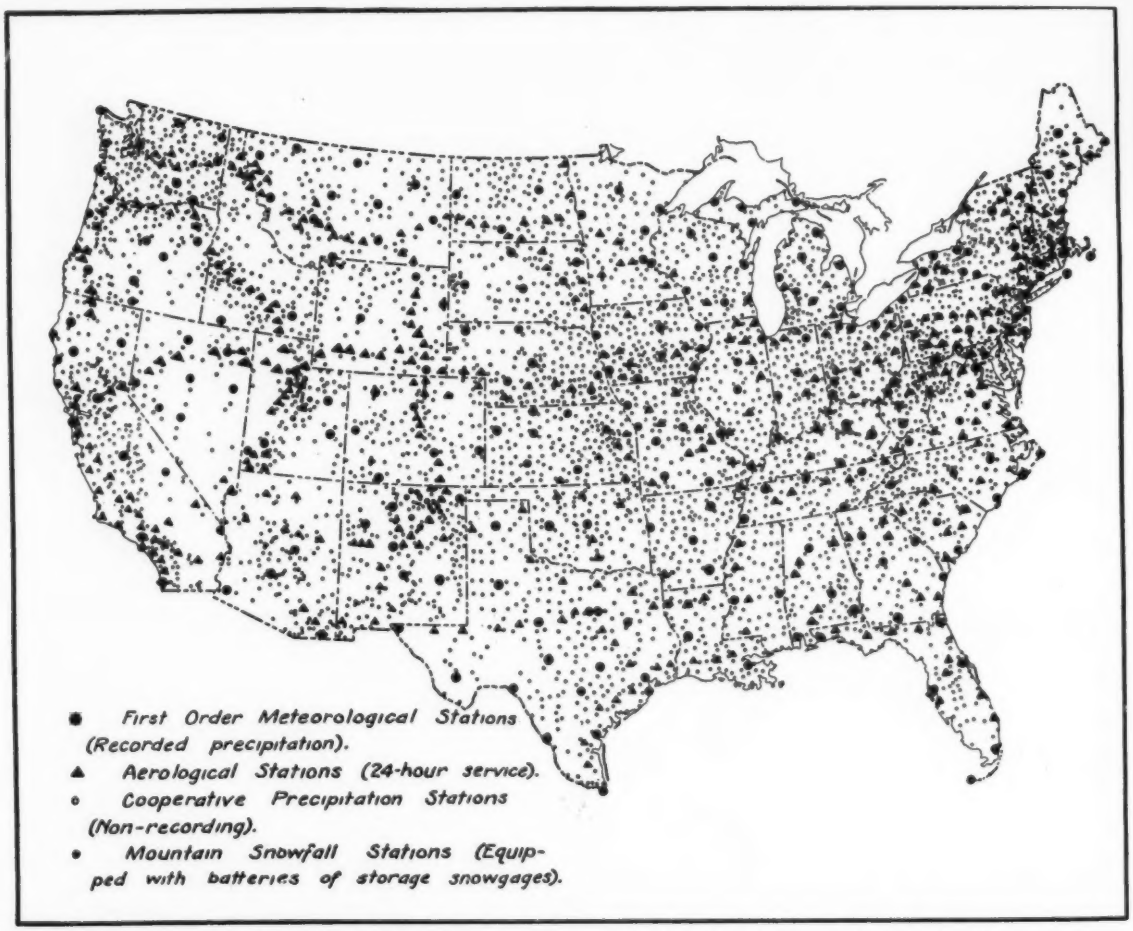
A flood forecasting service is judged by the accuracy of its predicted stages; the opportunity it affords for preparation in the length of the forecast period; the facility and completeness with which the information is disseminated; and the confidence with which the public accepts the forecasts, as expressed in prompt response to an organized plan of action. What is required to accomplish these objectives?

First: A network of precipitation stations to cover the country equipped with automatically recording rain gages which show the rate of rainfall as well as the amount.

Second: River-flow stations that measure the rate of flow as well as the height of the stream and thus account for the movement of the flood from headwaters to outlet.

Third: Means of communicating to the forecaster pertinent information regarding rain as it falls and stream discharge along the march of the flood.

Fourth: Well organized forecasting centers manned by trained hydrologists and meteorologists who can translate quickly situations of storm and rainfall into terms of excessive run-off and flood-flow.


First Order Meteorological Stations (Recorded precipitation).
Aerological Stations (24-hour service).
Cooperative Precipitation Stations (Non-recording).
Mountain Snowfall Stations (Equipped with batteries of storage snowgages).

The Weather Bureau's vast network of stations forms an outpost against the unheralded approach of flood making rainstorms

Fifth: An organized community. It is the community's task to maintain an alert awareness of the flood hazard and to educate the public to the advantages and economies of flood preparedness. It is also a community responsibility to develop well organized plans of action that are best accomplished through prearranged cooperation with the American Red Cross and Corps of Engineers.

Let us bring into focus the sequence of events that culminate in a flood. For the great disastrous storms, the action usually begins in remote tropical regions where vast air masses are being warmed and moistened, and in the far polar regions where dry, cold masses of homogeneous air are being (*Continuing on page* 512)

STORMS

By

HOLLIE LEE MASON

OUR primitive instincts, strangely intermingled with attributes of the soul, are keenly whetted by the clash of elemental forces. In the presence of nature's angry displays of force man reaches his full stature, becoming one with the god of the lightning and the storm.

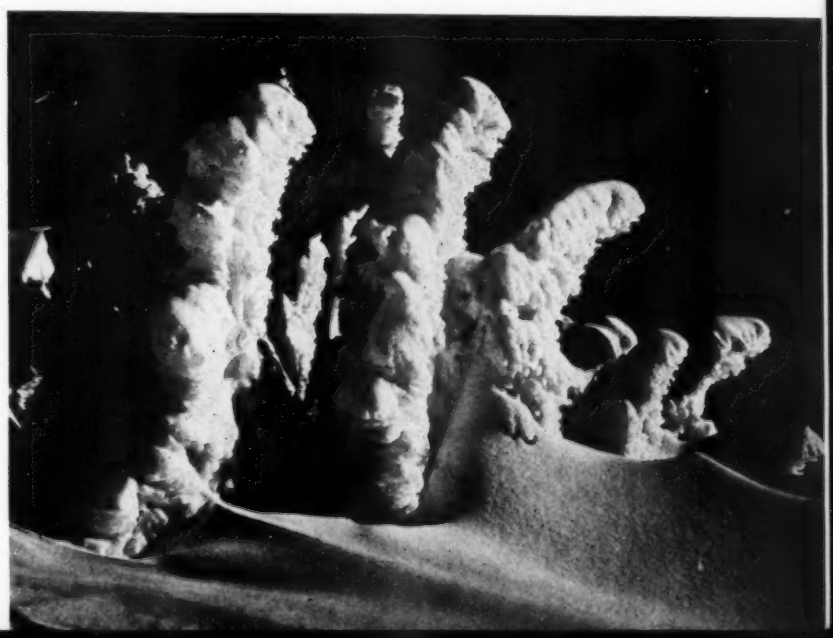
With mounting waves of a turbulent sea piled to dizzy heights upon a troubled shore amidst the crash and din of nature's warring forces, our earthly life may have found its beginning and thus became kin to the fury of the Heavens. For uncounted æons of time life has struggled upward, beset from all quarters by the cross-fire of the elements,—scorched in the burning heat,—frozen in the merciless cold! Life ever has been and continues to be buffeted by the mighty waves of the sea, lashed by the forked tongues of lightning, blinded by the rain, the sleet, the snow and deafened by the crash and roar of thunder. Out of nature's stormy realm life has advanced slowly, step by step — ever so slowly — until man is now able to approach comprehension and turn, in narrow measure, the natural elements about him to his own account. These forces, at their wildest, afford him his greatest thrills and his richest moments.

When the thunder rolls and the lightning flashes luridly; when great forest trees are whipped and lashed and bent by the wrathful winds; when blinding torrents of rain take the breath, then it is the red blood of man runs fast, courageous — one with elemental strife. Such a storm washes the soul of pettiness, selfishness and greed.

What is more stimulating to the intellect and, strangely enough, to the primitive animal senses than a great storm far out at sea; a tempest of such elemental savagery as to cast in doubt the survival of the ship on which one stands? To ride the deck of such a craft with the storm's wild fury beating against your face is to know the fulness of life. It is then, if ever, that all the faculties are completely awake. Exaltation and a wild, fierce joy, albeit tempered with fear are yours as you are lifted on the crest of a mountainous wave close to the throne of the Great Storm King himself and then tossed carelessly back into a cavernous trough of the sea,—down, down, down, as if nothing could save you from the depths!

But to be alone in the heart of the forest in winter when the sky grows threateningly dark and comes down close, just above the trees! A strange joy abounds here words do not express. There is then a cathedral, awe-inspiring hush. The busy activity of the forest has vanished. There is no sound. No cheep of bird nor noise of furtive animal. The king of the SILENT storm rides this way and presently looses an avalanche of soft, falling snow. As the fairy flakes—each in its own exotic beauty—descend gently to earth and the old familiar landmarks slowly fade away to take on grotesque shapes, wrapped in soft white mantels, the spirit mounts and the soul rejoices to be there alone with the darkness, the snow, the silence and with GOD!

Photograph by Irving B. Lincoln



BIG RETURNS FROM LITTLE FORESTS

By
NELSON C. BROWN

Photographs by Adelbert Ebner

SOMETHING unusual in the United States, though commonly found in some of the European countries, is a small forest yielding sufficient income to maintain a family and several employees for hundreds of years. And this forest may consist of a tract of only 1,250 acres, or less than two square miles, as is the case of the family forest of Perfall, in Bavaria.

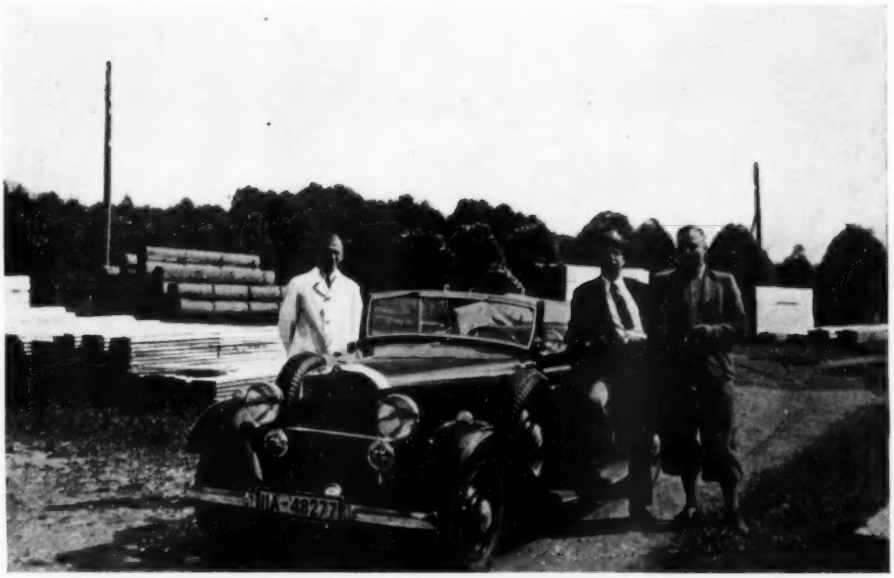
While it is true that many large family estates have been in existence in Germany for several hundred years, and have been conducted profitably, the forest of Perfall is an example of a small area intensively managed in such a way that the forest is kept continually growing although there is a constant cutting. The secret of success has been to develop a local market for every possible product of the forest. And this business of handling the forest as any private business or enterprise has been handed down from father to son since the year 1230. The seat of the forest of Perfall is on a high hill near the ancient village of Greifenberg. Here is located the old family castle from which one may enjoy a magnificent view of the Bavarian Alps, looming high with snow-capped peaks to the south. Barons and other nobles erected their castles on high hills principally for defense against roving bands of marauders, or in times of war. A little chapel for family worship is still used, and an old moat is still maintained in good condition. The placid waters of a lake are close by, and well kept farms and forests are maintained in the neighborhood much as they have been for centuries.

This little family forest is composed almost entirely of Norway spruce, with some beech, and it is growing timber at the rate of 750 board feet a year an acre—an unusually high rate compared with average American growing conditions. Since 1840, a very carefully prepared management plan has been followed. Trees are cut when ninety-two years old and the stands are con-

A view in the luxuriant and mature spruce timber of the old Perfall family forest near Greifenberg in Bavaria. This forest has been practically their sole source of livelihood for over a period of several centuries

stantly thinned during the growing period in five distinct age classes. A little beech is permitted to grow one hundred and forty years before being cut.

The secret of financial success in this forest management plan is a small sawmill used to cut from 6,000 to 8,000 board feet a day to supply a local demand for various forms of building operations. At 6,000 board feet a day output, this little sawmill runs an average of 110 days a year.



On the right is shown Mr. Perfall, who is the forester and general manager of the family forest, standing by the author. This scene is in the yard of a sawmill where lumber, farm timber and material for ladders, hayracks, fence posts and other local forest products are prepared for market

In addition to the principal lumber product which is cut at the sawmill on the property, a yearly return of about $2,800 is secured from miscellaneous by-products of the forest — the faggots and small thinnings used for fuel wood, sawdust for bedding, grazing privileges sold to the local farmers for their cattle, gravel pits, wild berries and mushrooms. In fact, the by-products from these miscellaneous materials produce a larger net income than does the sale of lumber. Advantage is always taken of changes in local market conditions so that the standing timber is converted into such materials as hayracks, ladders and fence posts.

Each year, in addition to these by-products, about 840,000 board feet of lumber are cut. At $50 a thousand feet, this would yield a gross income of $42,000 out of which must be paid expenses for logging, log haul, manufacture and sale of lumber.

From game is also derived an important by-product in this plan of forest management. Each year from thirty to forty roebuck are taken in the forest, as well as from fifty to seventy hare. In addition, fishing privileges on a small trout stream are rented at from $160 to $200 a year.

Part of the mixed spruce and beech forests about ready for cutting. Note the low stumps in the foreground, showing repeated thinnings to improve the growth and condition of the stand. An excellent income derives from the sale of forest products as well as for hunting privileges, and the broad forest offers as well a quiet restful spot for the enjoyment of the people in neighboring villages

This little forest business keeps six men engaged continuously. The same crew that does the logging operates the sawmill. The son of the family is chief forester and general manager. He is kept busy looking after cutting and sawmill operations and deliveries. He must also sell the lumber and other products.

The general manager studies the local market require-

(*Continuing on page* 523)

DRAMAS OF THE WILD

By LEO A. LUTTRINGER, JR.

NOT so very long ago a game protector in Pennsylvania, inspecting a wildlife sanctuary, came upon a tragic sight—a deer, its head tightly wedged, or clothes-pinned, in an opening in the trunk of a large tree, dead from starvation. To the experienced and understanding eye of the official this grim and not altogether unfamiliar picture reaffirmed that which he already knew to be true, that in the domain of the wild, tragedy and disaster stalk the unfortunate, the unwise and the weak; that in nature the great drama of life and death is being constantly enacted, just as it is in man's cities, villages and countrysides.

It was not difficult for the protector, wise in the ways of the wild, to reconstruct the tragedy. It was quite evident to him that the deer, young and in good health, had been lured to thrust its head through the wide lower part of the opening by appetizing lichen and ferns growing in the dank soil along the inner base of the tree. Surprised or frightened while thus engaged the sensitive creature did what it is his breed to do, raised his head with such whip-like energy and rapidity that it became wedged in the narrow upper portion of the trunk cavity. Unable to extricate itself, though it struggled valiantly, this splendid but unfortunate animal starved to death.

Unusual? Of course. But only in circumstance. Only the device and the scene form the intricate pattern of drama; the end, or climax, is always the same, sudden or lingering death for some animal, bird, fish, or insect. The setting may be, for instance, as a railroad engineer found it one afternoon through the cab window of his rolling locomotive. His quick eye caught a glimpse of a large deer swinging head down from a high snow fence, as though its hindleg had been caught between

Drama ending in tragedy, as this deer died of starvation—clothes-pinned in the crotch of a tree and unable to extricate itself

the upper palings. Investigation proved this to be exactly the case. The animal, although quite capable of jumping an eight-foot fence, had for one reason or another failed in this attempt. Its leap had fallen short about twelve inches—just enough to bring death.

Or it may have been the pattern of the pitiful plight of the black bear found hanging from a small maple tree in Pennsylvania. Investigation brought out that the animal had stepped in a fox trap and in a frantic effort to get rid of it had done what most bears will do in times of stress—climbed a tree. But unburdened hind feet are quite necessary to a bear for safe tree climbing, and this unfortunate creature, one hind foot useless, slipped and fell, its head being caught in the crotch of the tree. The climax? Death from a broken neck!

Recently a game protector reported the discovery of a deer hanging by its neck from a large crack in a tree stump. Salt had been placed on the stump, unusually high, and the animal, standing on its hind legs to reach it, no doubt slipped and fell, its weight forcing its neck deep into the crack—a trap from which the luckless buck failed to release himself. Death was from neck injury, aided by starvation.

Accidental tragedies such as these, while possessing greater elements of drama because of uniqueness in device and setting, by no means take the toll of wildlife that may be attributed to the stern and endless fight for existence that goes on in forest and field. First is the drama of the predators—sly old foxes catching and eating unsuspecting rabbits, or tawny bobcats leaping upon little spotted fawns, or a red-tailed hawk swooping down to nab a choice tidbit of a mouse. It goes on all of the time, night and day, per-

And this dramatic incident also ended tragically as the deer, attempting to jump a snow fence, fell, and was killed

Wisconsin Conservation Commission

Locked in mortal combat—here lies mute testimony of a great battle

Typical of the large signposts Pennsylvania game officials have erected in forest areas cautioning motorists to slow down

haps every hour of the night and day. Who knows exactly? Ceaseless is the battle in nature's realm for supremacy as well as for survival. Not so long ago a game protector in an eastern state reported the finding of two eight point buck deer, their antlers hopelessly locked together, still fighting for the right to lead their herd. The protector succeeded in parting them but one was so badly injured that it died almost immediately. But usually animals under similar circumstances are dead when found,—chiefly from exhaustion and starvation.

Man contributes in many ways to the dramas of the wild, mostly by his instinct to hunt and his unfortunate habit of tampering with or destroying altogether the environment so necessary to wildlife. In recent years has come the speed craze and the machines of man are taking a greater toll along the highways and byways than can be imagined by most lay observers. As a sample, Pennsylvania game authorities report that in four years more than four hundred deer were killed by speeding automobiles on a single eighteen-mile stretch of forest highway. In several counties in northwestern Pennsylvania, between July and

For hundreds of deer are killed annually by cars travelling at unnecessarily high rates of speed

At the right—Starvation is a terrible thing—a game man finds a young deer, ravaged by starvation and dead in the snow

November of 1937, three hundred or more deer were killed by automobile speeders. The situation is so serious in some parts of the state that game officials have erected large signboards cautioning motorists to slow down and to keep a sharp watch for wildlife. What brings the deer to the highways? There are many reasons, not the least unique and interesting of which is the attraction salt, dropped from ice cream trucks, has for them.

Speeding machines apparently do not frighten them. A game protector in western Pennsylvania reported that a motorist ran into a young buck deer shortly after dark one evening, breaking its leg. The animal hopped away only to return four hours later and be struck and killed by another automobile.

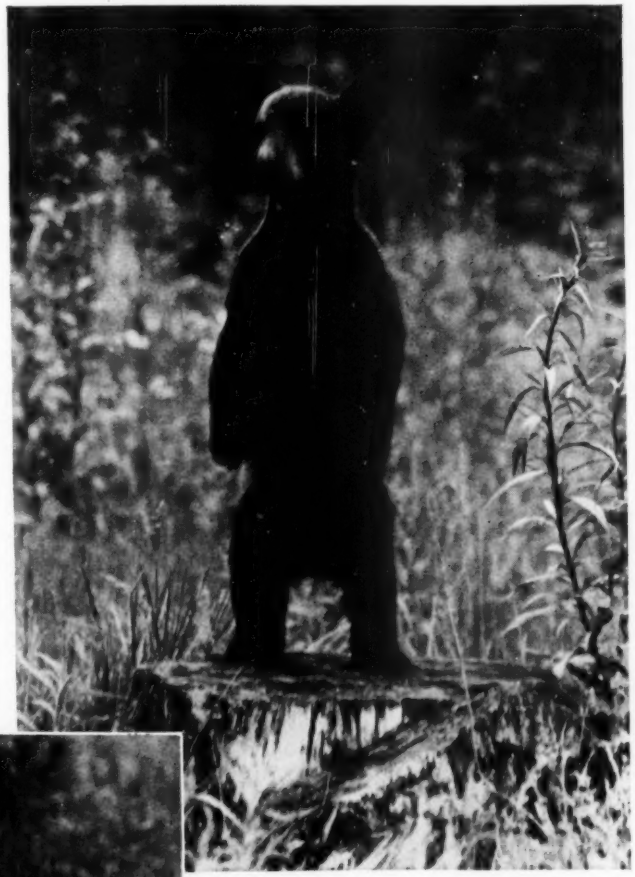
It is also reported from Pennsylvania that from 2,500 to 3,000 ringneck pheasants are killed by speeding automobiles every year.

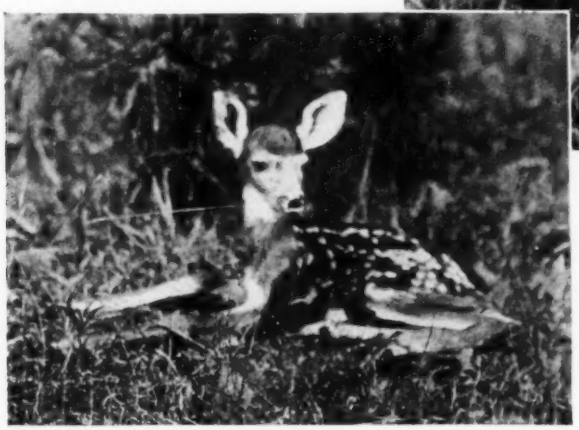
W. E. Dreyer, writing in *Science* a year or so ago, presents an enlightening national view of the destruction of wildlife by automobiles. Arriving at his conclusions by his own observations as well as the studies of others, Mr. Dreyer estimated that more than 7,000 birds and animals are killed every day by automobiles in the United States. These include deer, muskrats, rabbits, skunks, squirrels, turtles, snakes, woodpeckers, flickers, robins, sparrows and a host of others. A 600-mile trip through Iowa revealed 225 dead animals on the highway; a 500-mile stretch through Illinois, Indiana and Ohio revealed 179 animals. Considering these trips and many others, at various times of the year, Mr. Dreyer concluded that the observed death rate per mile per day for wildlife is .0098, a rate which would produce an estimated daily destruction in the entire United States of 7,350 birds and animals.

Starvation is a terrible thing. The helplessness of it and its tragic, slow death make for dramas that are too grim for recital. Particularly during severe winters where food is scarce does starvation among the wild creatures reach appalling gruesomeness. Small game, especially, find it difficult to get food when heavy snow covers the ground. Last year a friend of mine dug out a covey of quail from under six feet of snow drift. They were fortunate and lived. But there were others not fortunate enough to be dug out. They died, of course.

There is another menace that goes hand in hand with starvation—wild dogs. Hundreds of deer and other animals are killed annually by dogs running for the most part in pairs or in packs. If deer and other animals are weakened by scarcity of food they fall easy prey, for it is the manner of the pack to run a deer until it is spent, until it is so exhausted that it is unable to keep to its feet, much less offer resistance. These dogs are usually outcasts, one time house pets no longer wanted and turned out to live on the community. Unless taken in by some dog-loving soul the chances are that the animal will sooner or later join a roving pack of half-wild dogs. Wildlife conservationists can contribute much to the bird and animal life of their community by ridding themselves of these half-savage beasts.

Quite often misguided individuals discover and take home supposedly lost young of wild birds and animals. This is not infrequent in the case of bear cubs and





Forest babies—lost! Drama but not tragedy for, given a chance, their mothers will find them again—they have more than likely just been frightened away by your approach

One of the greatest tragedies of the wild is forest fire — countless wild creatures perish

Below is seen the pitiful baked body of a sharp-tailed grouse found in its aftermath—an innocent victim—toll of the merciless fire

Wisconsin Conservation Commission

fawn deer. Here again the stage is set for drama, for the chances are that the cubs or fawns are not lost at all. More than likely the parent attending the youngster has been frightened away by the approach of the misguided individual and will return if the young is not molested. Wild creatures should be left in the woods and fields. They are seldom if ever lost.

The taking of our birds affords more drama, none perhaps more tragic than the fate which befell the beautiful plumed egrets before the national government took action to stop their commercialization to the millinery trade. The law was also needed to put an end to the indiscriminate killing of birds by America's foreign born residents—people who were never made to understand in their native countries the value of bird life. Many were the unique methods used by these foreign born to lure song and other birds into a potential pot-pie—and great was the tragedy.

The tragedy of polluted waters

No one can possibly describe the drama of wildlife in a forest fire. It is too ghastly, unutterably horrible. Countless wild creatures perishing in agony—countless more so frightfully maimed that they die soon afterwards—an equal number so affected by flame and smoke and shock that they fall easy prey to disease, and lingering death.

Perhaps a clearer idea of the tragedy suffered by wildlife when flames sweep forest and field may be found in a 1931 report of an official of the Wisconsin Conservation Commission.

"More than a score of deer were found after the fire," he stated, after investigating a 120,000-acre burn in central Wisconsin. "Undoubtedly, these were only a small percentage of the number destroyed. Surveys made by the Commission determined that sixty per cent of the deer surviving the fire had badly burned feet. One deer was found walking on its knees, and when put out of its misery it was found that both front legs had stiffened in a bent position and that the hoofs and foot bones had broken off. A dog was shot when caught in the act of killing a fawn which had badly burned feet. Another fawn was found dead in a ditch. A trap set near this fawn caught a coyote when he returned to his kill next day.

"For several months following the fire, freshly dead deer were reported both in the fire area and in the district surrounding it. In November a lame deer was gored to death by a herd of cows. Disease resulting from the weakened condition of the deer, due not only to burning but to suffocation from gas and smoke, took its toll during the winter. . . .

"The most abundant game bird in this region was the sharp-tailed grouse. At least one bird out of every four of this species was killed outright by the fire.

"Lack of oxygen, warmed and ash poisoned water combined to kill thousands of fish. Dead fish were found in all parts of the drainage ditches and in the Yellow River, which flows through the burned area. Dogfish, ordinarily one of the hardest fish to kill by lack of oxygen, were found in a helpless condition.

Although lacking the drama of fire, the tragedy of polluted waters is far more harmful to fish and aquatic life, particularly in the East. There are many streams, rivers, lakes and ponds absolutely devoid of fish and aquatic life today—waters where deep, azure pools and white flecked rapids were once the joy of anglers. The sad part of this tragedy is that pollution is so needless. Wastes from pulp and paper mills, from tanneries and from mines are chiefly responsible for the sad plight of inland waters. Perhaps the day is not far away when this waste will be converted into usable by-products, and the streams at last be given a chance to support fish and aquatic life.

Getting back to drama and birds, here is a unique case. Not far from where I live a piece of string found its way to a branch of a small bush. It was difficult to see, even when one was looking for it, but there it was, a veritable trap as it turned out. For a robin failed to see it also and became entangled. A brief fluttering, with death holding the string, and the robin hung itself.

Heron colonies always offer much that is dramatic. During the height of the nesting season it is not unusual for young birds, squirming about while being fed by a mother black-crowned heron, to be forced or pushed out of their high nests. Some land safely on the ground, of course, but more often the little fellows are completely unlucky and are caught by their necks in the small tree branches—to die by hanging.

One of the most needless tragedies where birds are concerned is the unwanted, half-starved house cat—the one that is taken out and dumped along some road to shift for itself. It must eat, therefore birds, particularly songbirds, suffer. Pennsylvania has recently instituted a law invoking a fine of twenty-five dollars for releasing unwanted cats along roads or highways.

Unique and tragic drama—a robin meets an ignoble death—self-hung

The end of a song—many a bird voice is forever stilled because of the depredations of uncontrolled house-cats

And so in nature, as in the domain of mankind, is enacted the great drama of life and death, with disaster constantly overtaking the unfortunate, the unwise and the weak.

LOG-BIRLING TODAY

At Escanaba — One-time Lumberjack Mecca — An Ancient Sport Is Revived

By GEORGE T. SPRINGER

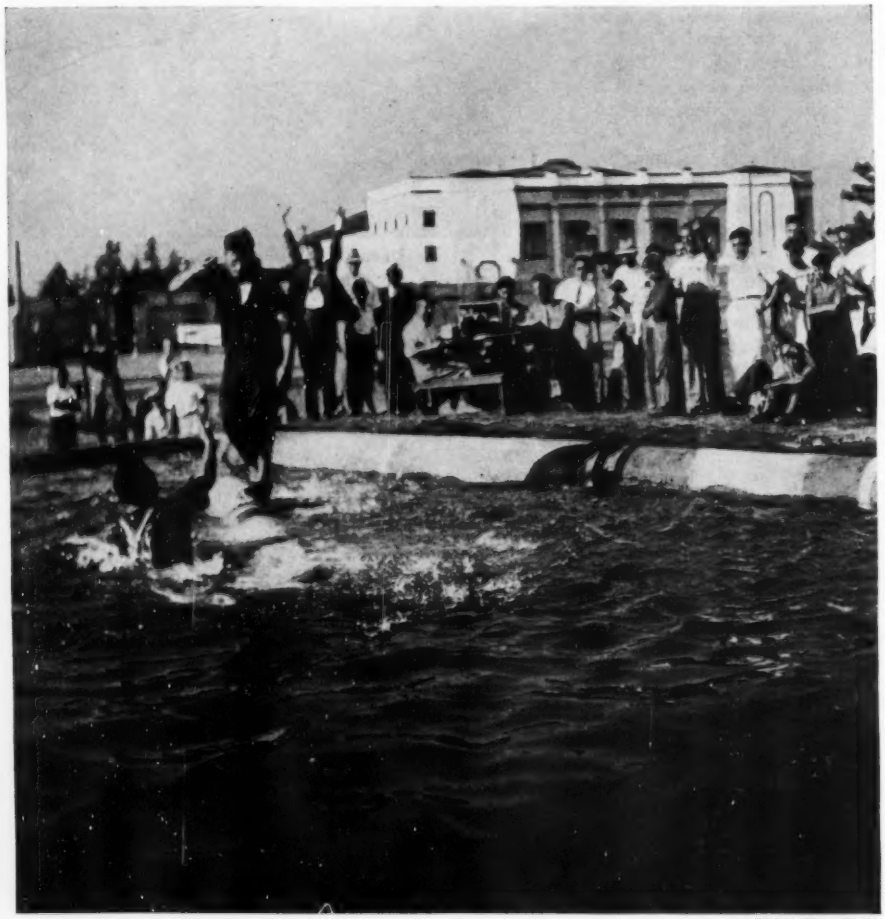
IT is true that many of the streamlined loggers of the 1938 model are going in for golf and tennis, but it is also true that the ancient lumberjacks' sport of log-birling is being kept alive. At Escanaba, on Michigan's Upper Peninsula, more than a hundred agile men, plus a few women, vied with each other in the summer of 1937 for the title of World's Champion Log-Birler.

Log-birling looks very simple. But it isn't. Two men, sharp-shod with steel calks in their boots, get on a floating log. They roll it—"cuffing" and "snubbing," they call it—with their feet. The man who tumbles into the water is the loser.

That's all there is to it—to the casual eye-witness. He can't know, for instance, that a white pine log rolls differently than a Douglas fir and requires a different technique. And a cedar log, lighter than either and standing higher in the water, is something else again. The speed with which an expert birls a log is almost too quick for the eye. A good man can bring it to a stop quickly enough to un-horse an opponent. And there are all sorts of tricks to send a man under.

The sport calls for strong legs and ankles, for the strain is terrific. A good birler, too, must possess what for want of a better term is called a sense of balance. Given these two qualities and a man can with practice become a fair cat on the logs. No one knows just when birling came into being as a lumberjack sport, but it was common in early 18th century New England, for it was there that logs were first driven down streams to the sawmills. The Penobscot men, who soon gained fame as Bangor Tigers, were notable birlers and from the Penobscot the sport went along West as the lumberjacks moved into new timber.

But the 20th century brought more steam and more railroads. It also brought power dams. Railroads and dams largely did away with rivers as highways for long logs. The lumberjacks, or most of them, forgot the honorable sport of birling. But up in Escanaba, Michigan, were a few old-timers who could recall the day



Detroit News Photo

History in the making—Joe Connor, a college boy, rolling Wilbur Marx,—old-time lumberjack champ, into the water, winning the 1937 world championship

No field seems safe from feminine invasion, since they have taken to the loggers' ancient sport of birling. Above you see Laura Marchand, of Cloquet, at twenty-two years old, holder of the 1937 world's championship for women. And, at the right, Billy Girard shows himself an expert at fancy birling by jumping rope on a slippery log while below he and his son, Lowell, give an exhibition of real monkey shines in the fancy birling contest

when that city was a lumberjack Mecca, when white pine rolled in by the million feet, with gallant lads in red underwear riding them wide and handsome. The recollection was all but dimmed when the old-timers got together and formed the Escanaba Roleo Association. The "roleo" explains itself. It's simply birling with a new name. The first contest, staged at Escanaba in August, 1937, brought out scores of old-timers, some of whom hadn't had on a pair of calked boots in a decade and more. Newspapers and radio and the newsreels pounced on the idea as something new. The contest attracted thousands of persons, many of them to see a log rolled for the first time. It was all good sport and lots of fun, but the rheumatic oldsters were chagrined and no little amazed when Joe Connor, twenty-two, walked away with the title and the championship cup. They all admitted that Joe Connor was an able man on a log, but he was a college boy. . . .

The old-timers rubbed their eyes again when they saw girls, four of them and all of them pretty and graceful, put on calked boots and hop to it. Laura Marchand, twenty-two also, from the grand old sawmill town of Cloquet, Minnesota, rolled her way to the woman's championship.

There were far more entries this year than last at Escanaba. Lumberjacks from as far away as Oregon and Idaho and Washington to the West, and from Nova Scotia to the East, filed their entry blanks to appear at Escanaba and "show their stuff." With top prizes in the championship round of $500 and others ranging down to fifty dollars for fourth place, there were in addition prizes for straight birling and for the winner of the block turning contest and the best trick and fancy birlers. The total prize money of $2,000 included consolation prizes ranging from twenty-five to one hundred dollars, and those for the prize-winning girls, running from fifteen to one hundred dollars. All summer old-time loggers all the way from Halifax to Seattle spent their spare time getting their legs and ankles into shape for the championship go. They were determined to do their darndest to see that collegians did not again walk away with the heavyweight belt in what was once one of America's greatest outdoor sports. And they succeeded, for the cup and championship went back to the West Coast (*Continuing on page* 523)

SECRETARY WALLACE REORGANIZES HIS DEPARTMENT

By G. H. COLLINGWOOD

FAR REACHING structural changes in the Department of Agriculture designed to unify and coordinate the expanded land-use program of the country and to give quicker and more efficient service to the farmers became effective on October 16, in accordance with an announcement by Secretary Henry A. Wallace on October 6. In the interest of simplifying departmental relations with individual farmers, a reconstructed Bureau of Agricultural Economics is given department-wide responsibilities for the analysis and formation of general land-use programs and plans. To head these activities, H. R. Tolley, formerly Administrator of the Agricultural Adjustment Administration, has been appointed chief of the bureau.

Following a design worked out in cooperation with the Association of Land Grant Colleges and Universities approved July 8, 1938, the work will be coordinated with Agricultural Land Use Program or Policy Committees now being established in each of the several states. Included in the membership of these several committees, of which the State Director of Extension is chairman, is the State Forester, a representative of the Forest Service, the Soil Conservation Service State Coordinator, and all other state and federal officials having responsibility for the management of land-use programs within the state. The influence of these state committees will extend into the several county committees consisting of farmers and responsible officials within the county, and back to the Department at Washington through the Bureau of Agricultural Economics. Before receiving the final approval of the Secretary, however, they will be considered by a clearing group known as the Agricultural Planning Board. In this way the national land-use policy will integrate the interests of agriculture, forestry, and wildlife.

Of special significance is the consolidation in the Soil Conservation Service under Hugh H. Bennett, of all Departmental responsibilities for the execution of erosion control, water facility, flood control, submarginal land purchase and development, and farm forestry activities, in order to provide comprehensive land utilization and conservation services for all but forest and wildlife lands.

This is interpreted to mean that responsibility for planning farm forestry work—like other phases of forestry—will be shared with the Bureau of Agricultural Economics. The action phase of farm forestry will be handled by the Soil Conservation Service under a cooperative agreement with the Forest Service and Extension Service. A similar change will affect the wildlife conservation program of the Biological Survey.

While this indicates that one phase of the farm forestry program under the Norris-Doxey Cooperative Farm Forestry Act of 1937 will be administered by the Soil Conservation Service, it is understood that farm forestry research will be conducted by the Forest Service as heretofore, and the educational work will be handled by the Extension Service. All development contemplated under this Act has for some time past been included as a special responsibility of the Secretary's Office. For the time being at least, it is understood that the Shelterbelt Project as now being conducted with WPA funds, and federal cooperation with the states in the growing and distribution of forest planting stock will remain in the Forest Service. No changes are contemplated in the administration of the National Forests, the relations of the Forest Service to State Foresters, or with research as conducted by the several forest experiment stations and the Forest Products Laboratory.

The change in farm forestry work is made so that the individual farmer can work exclusively with one representative of the Department on all physical land-use activities. "Henceforth," explained Secretary Wallace, "whenever the general plans for conservation operations call for federally-financed work on farm land—erosion control, or reforestation, or work for flood control or provisions of water facilities in the West—whenever these things are to be done, the Soil Conservation Service will do them. From now on it will be possible for farmers to deal with a single agency on all matters involving actual physical work on their land." He explained, however, that the Bureau will not take over the details of planning which are inherently a part of administration and operations.

Moreover, under the new organization the Program Planning Division of the Bureau of Agricultural Economics will assume responsibility for the general land use planning functions under the Flood Control Acts, Water Facilities Act, as well as forestry program.

The Secretary also announced that R. M. Evans, until recently one of his administrative assistants, will take the post of Administrator of the AAA, and Dr. H. G. Knight, Chief of the Bureau of Chemistry and Soils, will coordinate all research in agricultural technology and engineering. It is understood that this applies to the four regional laboratories for industrial research in the use of agricultural products, and in no way affects the work of the Forest Products Laboratory.

The new organization which is understood to be in line with the President's ideals for government reorganization was worked out by Secretary Wallace in the light of experience gained in administering the agricultural adjustment, conservation, and marketing programs of the past five and a half years. The basic purpose is to bring to bear upon each program—such as forestry, rehabilitation, or soil conservation—the full range of resources of the Department. The plan should therefore benefit the whole forestry program.

The Chief of the Forest Service will serve as a member of the Agricultural Program Board, of which M. S. Eisenhower, Director of the Office of Land Use Coordination, is chairman. This Board will review all plans and programs of the Department before they are approved by the Secretary for execution by the various action agencies.

EDITORIAL

REORGANIZATION

WHILE others have been talking government reorganization, Secretary of Agriculture, Henry A. Wallace, has been doing it. Working quietly during the past year, he has drafted a reconstructed plan of operation for his Department. His main objective, it appears, has been to streamline the Department down to the farmer and the farmer up to the Department. To accomplish this, the Secretary has adopted in a modified way the principle of a general staff through which local planning by county, state, and regional committees composed of representatives of the Department, agricultural colleges, farmers and other land users, will course up to the Department and there be cleared and integrated into unified bureau action.

At first glance, the reorganized structure, which is more fully explained elsewhere in this issue, does not appear to have much bearing upon the conservation activities of the Department. Nevertheless it does. For one thing all land use programs involving conservation on farm lands, including forestry work, is consolidated in the Soil Conservation Service. The important feature however is that the reorganization clear-cuts conservation activities and integrates them as essential segments of local agricultural and land use problems, thereby effecting more harmonious and more efficient relationships between all bureaus and agencies of the Department.

Furthermore, it gives the state foresters and local land users, both farmer and timber owner, a voice in shaping federal land use programs and in carrying them out. The fact that the plan puts a check upon the freedom of conservation as well as other bureaus of the Department to engage in over-lapping studies and programs on their own account is a merit rather than a defect that should make for order, economy, efficiency and less bureaucracy.

Secretary Wallace's forward action demonstrates what this column has heretofore contended; namely, that a great amount of the federal reorganization needed can be done within the departments without waiting for an over-all reorganization act. If other departments would emulate the Secretary's example and enter into amicable coordination of conservation fields and efforts, the need for radical revamping by special legislation of the whole government structure would be shown, it is safe to say, a somewhat exaggerated need as far as conservation is concerned.

NEW ENGLAND'S HURRICANE

NEW ENGLAND'S trees in common with its people sustained an incalculable loss in the hurricane of September 21. In point of towns and people affected and in timber values involved, the blow-down was the worst in the history of the country. The hundred-mile wind that roared up through Connecticut, Massachusetts, Vermont and New Hampshire spared neither shade and street trees in the towns nor timber trees in the forest.

Timber tree losses on the basis of present rough estimates will run into staggering figures. Preliminary estimates of timber blown down in the forests seems unbelievably high in that the figures represent one-fourth of all the standing merchantable timber in the four states. The region is predominantly one of farm woodlots and small timber holdings upon which the owners depend in part or in whole for a livelihood. The loss will be felt most keenly by them. They no less than the states concerned are faced now with the herculean task of salvaging and marketing the down timber which must be removed quickly to avoid depreciation.

Obviously the work of removing several billion feet of down timber, of converting it into lumber, and of marketing it call for ready and extensive credit facilities and it is to be hoped they may be provided promptly. The New England states are moving swiftly to meet this phase of the emergency and the Federal Government quite properly is expected to extend financial help. It is imperative that salvaging operations be started at once if the fallen timber is to be saved from wood destroying insects and diseases. A further hazard is that a long dry fall may expose the tangled down timber to uncontrollable forest fires.

Esthetic losses sustained by towns, cities, institutions and individuals through the destruction of shade and ornamental trees are not calculable. The number of such trees will probably run into the millions and their loss will rob many sections of tree beauty that has long been dear to their citizens. To individual owners of ancient elms under which family history has been written and around which cherished memories have long clung, the losses are especially poignant.

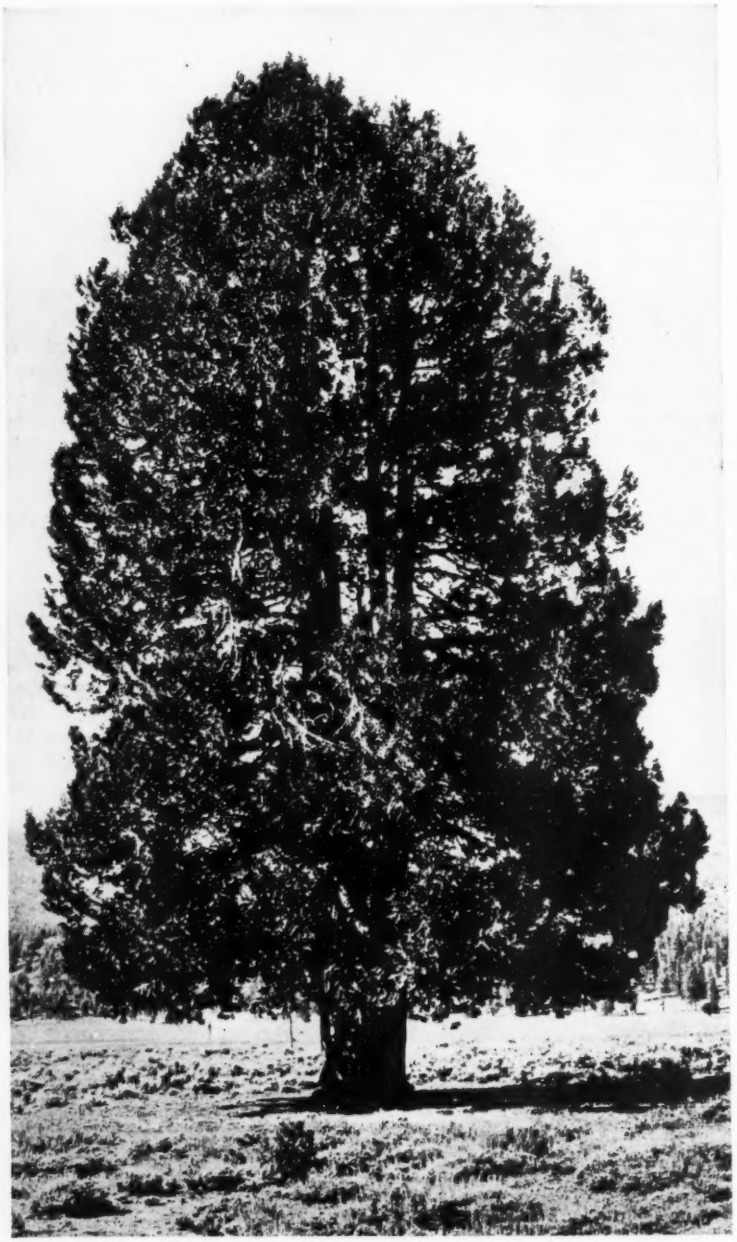
Large numbers of elms still standing have been injured and therefore weakened so that they are now less able to resist the scourge of the Dutch elm disease. The jumbled and scattered masses of broken timber and wounded trees will not only invite but be fruitful breeding grounds for the disease-carrying elm beetles. It will take heroic effort to prevent the spread of the disease into the tornado area. Both the states and the Federal Government must overlook no steps to guard against disease invasion.

WESTERN JUNIPER

***Juniperus occidentalis*, Hooker**

By G. H. COLLINGWOOD

THE burly, time enduring western juniper occupies exposed slopes and canyon sides in dry, gravelly, or rocky soils of high mountain regions from southeastern Washington through Oregon, Nevada, California, and into lower California. Scattered stands extend eastward into high elevations in Idaho, Montana, Utah, Arizona, and New Mexico. It is widely distributed from 2,000 to nearly 10,000 feet above sea level. The open, round-topped, stocky crown extends within a few feet of the ground, and trees twenty to thirty feet tall are common, but more frequently it is scarcely more than a bush. Under favorable conditions they attain heights of sixty to eighty feet, but the short, abruptly tapering trunk is seldom clear for more than four to eight feet. Huge lower branches often rise from the base and middle of the trunk to extend horizontally, and the trunk often divides into two or more thick forks to form a low, broad crown. Many trees reach diameters of sixteen to thirty inches at breast height, exceptional ones three feet to six feet, and a few of nine to ten feet have been reported.



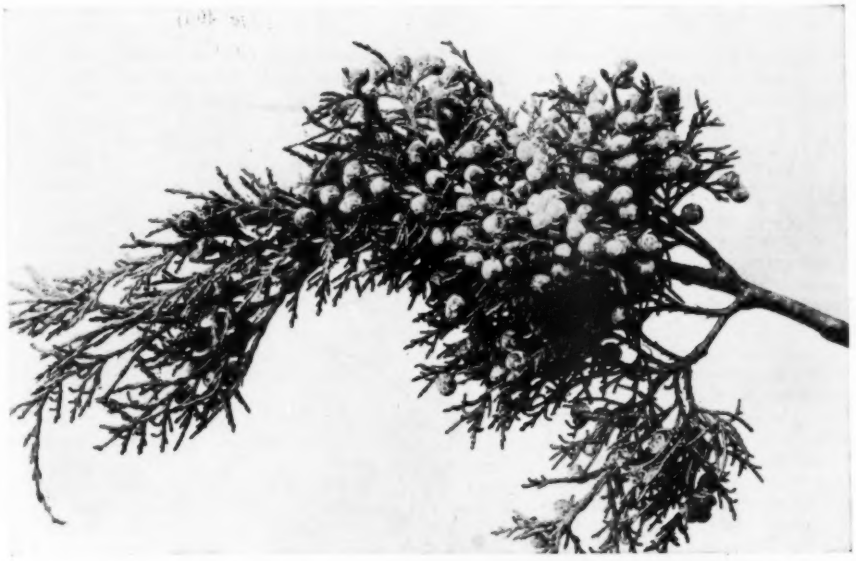
The broad open crown of western juniper, supported on a short chunky trunk, stands firm against the high mountain winds

Enormously large surface roots ramify into the dry, rocky soil and rock crevices to anchor the tree against the fierce winds. On sheltered flats the crowns may be symmetrical with densely conical, round tops.

This true juniper is commonly referred to as juniper or western juniper. There is no record of its earliest discovery, although doubtless members of Lewis and Clark's expedition saw it sometime during 1804 to 1806. The name *occidentalis* was given by Sir William Jackson Hooker in 1839, and distinguishes it as of the Western Hemisphere.

Two types of pale, ashy green foliage are borne on each tree. The larger portion are scale-like leaves, about one-eighth of an inch long, which overlap one another in groups of three as they closely clasp the stiff twigs to form a rounded stem with six longitudinal rows of leaves. Contrasting these, and usually on young growth, are longer, more needle-like leaves whose points stand out and make the twig harsh to the touch. A glandular pit, whitish with resin, marks the back of each leaf, and when

viewed against the light with a strong lens, minute teeth may be seen on the leaf margins. The twigs of the Rocky Mountain juniper, *Juniperus scopulorum*, are four-sided, with leaves arranged alternately in pairs. The crushed foliage of these junipers gives off a pungent, aromatic odor, and a decoction is sometimes used as a remedy for malaria, kidney trouble, boils, headaches, and coughs. The leaves begin to die during the second year and are gradually forced off by the growth to expose the smooth, red, new bark. There are no distinct or definite winter buds.



Pale, ashy green, scale-like leaves press close against the twigs, near whose ends are borne the bluish black berry-like fruits

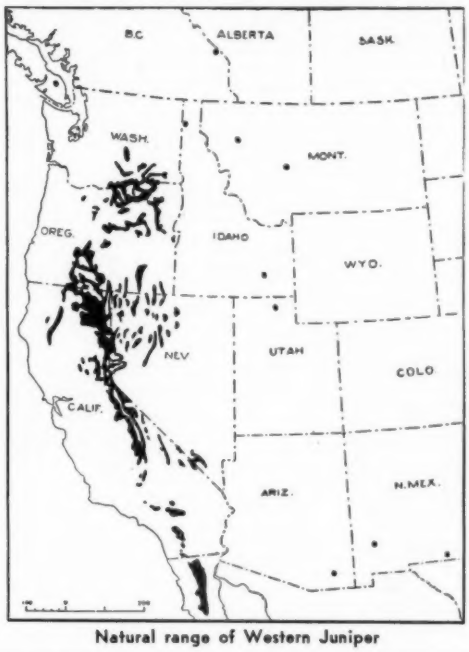
Wide shallow fissures divide the fibrous, clear cinnamon bark, which is half an inch to an inch thick

Like all junipers, the tiny, pollen-bearing male flowers are usually borne on different trees from those which bear the fruit developing female flowers. From the latter there mature in September of the second year bluish black berries about one-fourth to one-third of an inch long. A whitish bloom covers the rough skin, and the outer ends are slightly marked by the tips of the female flower scales, indicating that they are not true berries but modified cones whose scales have become fleshy and united. Within and thinly surrounded by dry flesh are two or three pitted or deeply grooved bony seeds whose large resin cells give the berry a sweetish, pungently aromatic flavor. They are relished by birds and by the Indians. It reproduces scatteringly in pure mineral soil.

The firm, stringy bark is a clear cinnamon-brown, a half inch to an inch and a quarter thick. Wide, shallow furrows extend vertically over the trunk to divide the bark into long, flat ridges connected at long intervals by narrow, diagonal ones.

The fine grained wood is pale brown tinged with red, slightly aromatic, and of great durability when exposed to weather or soil. It is soft and brittle, splits easily, and is one of the heaviest of all the cedars, for a cubic foot weighs about forty pounds when air dry. The thin outer layer of sapwood is nearly white. Because of its close similarity to the wood of the eastern cedars, there is some demand for it as a pencil wood. Usually, however, the trunks are short and knotty, so the distinctly local uses are for fence posts, railroad ties, fuel, and novelties.

Known as a slow, persistently growing tree, it is chiefly recognized for its ability to grow as an advance guard where few other trees can exist. The open groves are frequently without mixture of other trees. Sometimes, however, the stand includes a few such trees as lodgepole, Jeffery, ponderosa pine and the nut pines.



Natural range of Western Juniper

DEFEATING THE FLOODS BY PREPAREDNESS

(*Continued from page* 496)

set into motion. Then two such masses, thousands of miles in lateral extent, move towards each other, meeting somewhere over the eastern or central United States. The meeting is accompanied by an opposition of many elements—winds, humidity, temperature; but the colder air, still pushing southward, holds the ground by reason of its greater weight, and through repeated and persistent lifting of the tropical mass, cools it and thus forces the release of its burden of moisture in torrential rainfall.

Maps of river basins give the deceptive impression that there are large areas off which storm water flows as a sheet. The fact is, almost as quickly as rain falls, its run-off assembles into small flows that combine into a system of connected channels of appreciable dimension. It is in this phase that the characteristics of a flood can be identified and an estimate made of its volume as it moves down the river channel accumulating tributary inflow along the way. The flood, in final phase, is measured by its crest discharge and related stage at a given point, and it is these factors that the forecaster attempts to evaluate as far in advance of their occurrence as possible.

We must take into account the difference we shall find in the amount of water accounted for as river discharge on the one hand and that measured as rainfall on the other. If we could identify the actual rainfall that produced the Ohio River flow at Louisville, Kentucky, for the twenty-four hours embracing the flood peak of January 28th, 1937, we should find little difference between the two quantities, for heavy antecedent rainfalls had long since occupied all available surface pondage and storage and had reduced infiltration to the capacity limits of the soils comprising the basin.

It is to be seen, then, at headwaters and on tributary basins, that methods of forecasting from river stages, successfully employed on the lower river, must be so modified as to rest principally on rainfall, and must be supported by a system of rainfall reporting stations from which reports are made at intervals measured in hours and not days.

The network of precipitation stations must be extensive enough to represent all contributing basins of the larger river systems; sufficiently dense to give an accurate picture of general rainfall and to record the numerous intense thunderstorms that produce floods on the small basins; and so patterned as to give proper weight to the physiographic characteristics of the region, such as elevation and aspect.

As the flood waters accumulate and occupy the channels and flood plains of the river and its tributaries, the problem of forecasting changes radically in nature. We now have a vast quantity of water in storage, the staggering proportions of which can perhaps be grasped from the fact that the rain over the Ohio Valley in January 1937 would occupy a space 2,000 square miles in area with a depth of 100 feet. This vast volume of water must, of course, be crowded through the relatively small dimensions of the river channel and flood plain, so that forecasting becomes a matter of solving the simply expressed storage equation, which is that the outflow from any reach of the river must equal the inflow plus or minus the changes in the storage volume. This solution becomes a progressive procedure downstream and depends upon the prompt assembly of rainfall and discharge data at the forecasting centers.

The transmission of flood data has not been organized generally beyond the use of commercial wire facilities, but improvements are possible here also. Fullest use is to be made of the facilities of the Weather Bureau for transmitting reports by teletype at six-hour intervals along more than 30,000 miles of airways. In addition, the radio offers great possibilities, both in the use of point-to-point communication and in further development of the automatic broadcasting of rainfall depth and river stage. The radio amateur is rapidly becoming a bulwark against the failure of wire lines during flood emergencies.

Flood forecasting is rapidly developing a hybrid science—hydro-meteorology. The respective roles of the meteorologist and the hydrologist have, until now, been fairly free of confusing overlaps. The meteorologist has dealt with the atmosphere, including water in the form of vapor, which he has, figuratively, handed to the hydrologist as it condensed and fell as rain. The hydrologist, in turn, has undertaken to follow the "hydrologic cycle" from rainfall to the return of run-off waters to the sea and of evaporated moisture to the atmosphere. This distinction disappears however, in the problem of flood forecasting, which necessarily embraces the functions of both sciences.

The expansion of the Weather Bureau's river and flood service takes into account the application of these related sciences. The work has been regionalized, the country having been divided into ten hydrologic regions in which trained hydro-meteorologists will apply specialized knowledge, not only in rainfall and the resulting flood, but of the meteorologic causes of rainfall as well.

We have, in advancing from river stage to rainfall as a base, attacked the prime possibility of forecast projection; and while we cannot as yet forecast excessive rainfall quantitatively, we do have, in the Weather Bureau's vast network of stations shown in the map on

(*Continuing on page* 524)

TREES AND THEIR USES—No. 37—WESTERN JUNIPER

WESTERN JUNIPER IS A HARDY, LONG-LIVED TREE FOUND THROUGHOUT SOUTHEASTERN WASHINGTON, OREGON, NEVADA, CALIFORNIA INTO THE SAN BERNARDINO MOUNTAINS AND DOWN INTO LOWER CALIFORNIA. ALTHOUGH A HIGH MOUNTAIN TREE COMMONLY FOUND FROM 6,000 TO 10,000 FEET ABOVE SEA LEVEL, THE TREE DOES GROW MORE SPARINGLY AT LOWER ALTITUDES. WESTERN JUNIPER GROWS SLOWLY BUT IS BELIEVED CAPABLE OF REACHING AN ADVANCED AGE OF 2,000 YEARS. NATURE HAS EQUIPPED THE TREE WITH LARGE, LONG ROOTS THAT ENTER THE CREVICES BETWEEN THE ROCKS TO HOLD AND PROTECT IT FROM THE FIERCE WINDS OF HIGH ALTITUDES. THE BERRIES ARE A SOURCE OF FOOD FOR BIRDS, AND THE EARLY SETTLERS BREWED A DECOCTION FROM THE LEAVES WITH WHICH TO TREAT MANY OF THEIR ILLS.
THE WOOD OF WESTERN JUNIPER IS OF GREAT DURABILITY WHEN EXPOSED TO THE SOIL AND IS WIDELY USED FOR FENCE POSTS. THERE IS A LIMITED DEMAND FOR THE WOOD IN THE MAKING OF PENCILS DUE TO ITS SIMILARITY TO THE EASTERN RED CEDARS. MORE GENERAL USES, HOWEVER, ARE FOR FENCE POSTS, FUEL AND RAILROAD TIES.
THE FIBROUS BARK IS USED BY THE INDIANS TO WEAVE INTO MATS. THEY ALSO USED THE PITCH TO FIX THE FEATHERS TO THEIR ARROW SHAFTS, AND RUBBED IT INTO THE SHAFTS IN THE BELIEF THAT IT MADE THEM STRONGER AND MORE ELASTIC.
-FABER-

ASSOCIATION BOARD HOLDS FALL MEETING

The Board of Directors of The American Forestry Association held its fall meeting in Washington on September 21. Twelve of the fifteen Directors were present. The meeting was devoted largely to consideration of Association policies in respect to the organization of the government's conservation work and to the proper scope of federal activities in the fields of outdoor recreation.

Recognizing the urgent need of better organization of the government's conservation work both within departments and as between departments, the Board held the view that necessary reorganization and coordination can and should be accomplished within the present administrative framework of the government and without resort to the dubious expedient of creating a new department or of radical dislocation of logically placed bureaus. In keeping with this conviction, the Directors voted to urge more definite grouping within the Department of Agriculture of those bureaus and lines of work that are clearly within the field of agriculture. The position of the Board was expressed in the following resolution:

> "Moved, That The American Forestry Association reaffirm its position as stated in its resolution of February 18, 1932, and that in accordance with that position it take constructive action to bring about the grouping in the Department of Agriculture of activities which are primarily agricultural in character, with particular reference to forests, grazing, and wildlife."

The resolution of 1932, referred to, enunciated the principle that "the agencies which are concerned with the production and conservation of (1) crops and plants serviceable for food or environment for men and animals, and (2) plants and forests serviceable for soil and water protection, fibres, woods, and other plant products" should be under a common administrative agency in the Department of Agriculture. The recent action was interpreted to mean Association support of the retention of forestry and wildlife management in the Department of Agriculture with a merger in that Department of the two Grazing Services, one of which now administers grazing on the Public Domain as a division of the Department of the Interior, and the other grazing on the National Forests as a division of the Forest Service under the Department of Agriculture.

The action of the Board also would call for more unified organization and positive administrative coordination of the Department of Agriculture's various conservation activities and for inter-departmental machinery to effect necessary coordination with the conservation fields of other departments.

Following consideration of a report of a committee appointed by the Board more than a year ago to study and recommend what should be the Association's position in reference to the increasing extension of federal activities in recreation fields, the Board adopted the committee's recommendations as follows:

"1. The Board is of the opinion that federal participation is desirable
   - "a. In providing opportunities for wilderness recreation in National Parks, National Forests, and Grazing Districts;
   - "b. In providing opportunities on federally owned lands and waters for such other forms of recreation as may be compatible with the primary uses and values of such areas;
   - "c. In actually administering recreation of an educational or inspirational character on federal areas set apart for such purposes (e. g., National Parks, Monuments, Historic Sites, etc.);
   - "d. In providing advice where needed for recreation projects throughout the country;
   - "a. In assisting needy lesser political units, through financial aid contingent on substantial contributions by these units.

"2. That it is undesirable for the Federal Government to go into the actual administration and promotion of playground types of recreation, either on federal lands or on other areas, except where such activities may be justified by the inability of local agencies to care for the needs of their people. We believe that loss of local initiative and spontaneity cannot be compensated for by any amount of well meant activity directed from Washington."

The full report on the subject as prepared by the Board's Committee, consisting of William P. Wharton, Philip W. Ayres and Wilbur K. Thomas, follows:

"Your committee has made further inquiries of various government agencies having to do with recreation, of the National Recreation Association, and of individuals. In general we find a conception of the proper field of the Federal Government's participation in recreation much wider than we had ourselves suggested in our report of progress on January 25, 1938. The heads of both the National Forest and National Park Services have outlined a scope of activity far beyond anything this committee had thought necessary or advisable.

"Mr. Silcox, Chief of the Forest Service, stated in conversation that in his opinion the Service should provide free recreation for low income groups on the National Forests, including free transportation. Provision of recreation for children and young people's groups he regards as especially important. The Forest Service has already gone into the building of hotels and plans more, and will operate them itself through its own agents. It will avoid the concessionaire system used in National Parks. A bill was introduced in the last Congress to extend the powers of the Forest Service, providing for extensive cooperation with States and other owners in development of recreation on their lands adjacent to National Forests.

"The Park Service view, as expressed by Director Cammerer, is that all federal areas chiefly valuable for recreation should be administered by the National Park Service, and that all areas valuable (primarily) for recreation which are of national, as distinguished from local, importance should be part of the 'Federal Park System.'

"Thus we see the National Government, through two of its land administering bureaus, going into not only the provision of many types of recreational opportunities, but also into direct promotion of recreational uses.

"We have interviewed representatives of the Works Progress Administration, National Youth Administration, and the National Park Service in Massachusetts and New England to learn the extent and kind of recreational activities carried on by those agencies in a given State or region. As a result we are of the opinion that the activities of the Works Progress and National Youth Administrations are not of a nature to concern the policies of The American Forestry Association. On the other hand, the extension of Federal authority as a result of the recreation survey now being conducted by the National Park Service, may prove to be very considerable. The same thing may be true of areas acquired by the Farm Security Administration, and being 'developed' by it. We find that approximately fifteen federal agencies are concerned with administration or promotion of recreation, namely: The Biological Survey, Extension Service, Forest Service, Farm Security Administration (formerly Resettlement Administration), all in the Department of Agriculture; the Bureau of Fisheries in the Department of Commerce; the Office of Education, Indian Service, National Park Service, and to limited extent the Reclamation Service, all in the Department of the Interior; the Children's Bureau in the Department of Labor; the Tennessee Valley Administration; the Works Progress Administration; the National Youth Administration; the Housing Division of the Federal Emergency Administration of Public Works, and the Office of Public Health.

"A very definite challenge to the tentative conclusions reached in our January 25 report of progress comes from the large group of earnest persons who believe that a great enlargement of Federal activities is desirable, in order to provide directed recreation for that third of our population which is ill housed, ill clad, and ill fed. These persons take issue with our assertion that 'Providing recreation of the playground type is not properly a function of the Federal Government.' It is their belief that the needs of this large section of our population will not be met adequately through the initiative of the

(*Continuing on page* 524)

AROUND THE STATES

FOREST FIRE EVERY THREE MINUTES IS RECORD FOR 1937

A forest fire every three minutes—approximately 185,000—was last year's count in the United States, according to summaries compiled by the United States Forest Service from state and federal reports. Despite this huge loss, however, forest fires in 1937 were eighteen per cent less than in 1936. The burned area was 21,980,500 acres, or only slightly more than half the acreage burned during 1936.

The Forest Service attributes this reduction—greater than the combined area of all the New England States except Maine—to a number of reasons. Included are more favorable weather conditions, improved fire fighting technique, more complete fire detection, increasing cooperation by private woodland owners, availability of trained CCC fire fighters, and increasing care with fire by forest workers and visitors.

The reports reveal that ninety-four per cent of all acreage burned was on unprotected forest areas and more than eleven per cent of all unprotected forested land was burned over. The 121,449 fires on lands not receiving protection last year burned over approximately 20,637,000 acres, and caused damage estimated at more than $18,000,000.

The annual average number of fires on unprotected areas during the five-year period 1933-1937 was 104,816 and the average annual burn was 33,129,000 acres, causing a yearly damage estimated at $33,613,000.

The Forest Service reports that protection is now given to the 138,776,000 acres of federally-owned forest land needing protection, but only three-fifths of the 423,070,000 acres of private and state forest areas needing protection is as yet actually protected by organized fire control systems.

Only one-fourth of one per cent of the protected forest acreage was burned during 1937, and out of the total of 185,209 fires reported on all forests, only 66,752 occurred on protected land. Of these, 9,468 were on National Forest and other federal lands and 54,292 were reported on state and private forest holdings.

The area burned on protected forests in 1937 was 1,344,000 acres, of which 194,000 acres were listed as non-productive forest land while 1,150,000 were recorded as productive forest land. Of the productive forest land, 266,370 acres were mature timber and 883,260 acres comprised young growth.

Damages to protected forests were estimated at $2,466,000, a decrease of $6,774,384 over the average of the preceding five years. Protected federal land suffered damages of $186,000 while protected state and private forest holdings were damaged to the extent of $2,280,000.

Some of the most serious fires were those caused by incendiaries and lumbering activities. Incendiaries set twenty-two per cent of the 63,760 fires on protected land and such fires caused twenty-six per cent of the damage. Lumbering was responsible for only two per cent of the fires but caused slightly more than nine per cent of the total damage on protected forest land.

Although the average size of forest fires on federal lands during the five-year period of 1933-37 was 43.3 acres, fires in 1937 on protected federal areas were kept to an average size of 9.5 acres. On state and privately owned forest lands the average fire area showed a reduction from 48.6 acres to 23.1 acres during the same period.

Of the 63,760 fires in 1937 on protected areas, 15,023 were controlled with a loss of less than one-fourth of an acre; 30,823 burned between one-fourth of an acre and ten acres, and 17,914 fires burned areas greater than ten acres. On the National Forests and other federally-owned lands, more than two-thirds of the fires were kept under one-fourth acre and only eight per cent spread beyond ten acres. Only sixty-five fires in the National Forests exceeded 300 acres.

INTERIOR EMPLOYS FRITZ

Emanuel Fritz

Emanuel Fritz, professor of Forestry, University of California, has accepted an appointment as consultant on forest management in the Department of the Interior. He will be associated with Lee Muck, director of Forests and acting director of the Division of Forestry in the Office of Indian Affairs, in working out a plan of coordinated management of all forest resources of the Department, including forests administered by the Office of Indian Affairs, the National Park Service, the Division of Grazing, and the Oregon and California Railroad lands. Now on leave from the University of California, Professor Fritz has for the past several years been teaching forest utilization and working with the California Redwood Association in connection with a program of selective logging in redwood properties.

ISLE ROYALE NATIONAL PARK ACQUISITION PROGRESSING

Title to all land in Isle Royale, off the Lake Superior shore in the State of Michigan, together with all the numerous small surrounding islands is rapidly being vested in the United States preparatory to establishing the Isle Royale National Park. Under the Act of June 20, 1938, which amended the original authorization Act of March 3, 1931, all island lands purchased by the Federal Government with ECW funds are now included in the proposed park as if originally acquired for that purpose. These were made available by Executive order to purchase lands for conservation or forestry purposes. The new Act gives legal authority for continued purchase of land with funds "allocated and made available by Executive order, or otherwise, for the acquisition of lands for conservation or forestation purposes within the maximum boundaries."

Of the total area of 133,405 acres in the island, 102,567 acres, the bulk of which were formerly owned by mining and lumbering interests, have been acquired at a cost of $522,481. There are approximately 2,500 acres owned by the State of Michigan, and some 10,000 acres of unpatented public lands, transfer of which has been authorized. This leaves 18,072 acres of privately owned lands which must be purchased. Of this amount contracts have been entered for the purchase of 7,974 acres for $150,096. Condemnation proceedings are now in progress covering the remaining 10,098 acres of privately owned lands for which there was available early in July $125,921 of Executive order funds together with $100,000 from the State of Michigan. These sums are believed to be sufficient to meet the condemnation awards which will be completed in the early autumn. The total land cost of the island, with the surrounding small islands and the 178 acres in Passage Island to the north, will accordingly approximate $898,498.

The acquisition of lands with ECW money allocated by Executive order, together with arrangements made by the State of Michigan, permitted the National Park Service to put one CCC camp on the island during the summer of 1935. This was increased to two camps in 1936.

Most of the CCC effort has been used in erecting headquarters, constructing boat landings, establishing buoys along the waterfront and preparing necessary trails. With completion of the purchase of the lands and their transfer to the Park Service under authority of Congressional acts, it is understood that CCC will relinquish all responsibility for forest protection to the park authorities.

SHAKE UP IN PARK SERVICE PERSONNEL

Nine transfers of National Park Service administrative officers to further coordination between the field and the headquarters offices were approved on October 10 by Secretary Harold L. Ickes.

Dr. Harold C. Bryant, supervisor of Research and Information, is to be superintendent of the Grand Canyon National Park, and his place will be taken by Dr. Carl P. Russell, regional director of Region I, whose headquarters have been at Richmond, Virginia. In his new office Dr. Russell is expected to place special emphasis on the wildlife program. Miner R. Tillotson, superintendent of the Grand Canyon National Park, goes to Richmond, Virginia, to become regional director of Region I.

Hillory A. Tolson, chief of Operations at the Washington Office, is detailed for one year as acting regional director, Region III, with headquarters in Santa Fe, New Mexico, and Colonel John R. White, superintendent of Sequoia National Park, California, will go to Washington to serve as acting chief of operations.

To fill the vacancies made by these changes, Eivind T. Scoyen, superintendent of Glacier National Park, Montana, is being transferred as superintendent of Sequoia National Park, and Donald S. Libbey, superintendent of Hot Springs National Park, Arkansas, succeeds Mr. Scoyen at Glacier. Preston P. Patraw, superintendent of Zion and Bryce Canyon National Parks, will succeed Mr. Libbey at Hot Springs, and Paul R. Franke, assistant superintendent of Mesa Verde National Park, Colorado, is promoted to the position of superintendent of Zion and Bryce Canyon Parks.

In addition to these changes, Superintendent Edmund B. Rogers, of Yellowstone National Park, and Superintendent David C. Canfield, of Crater Lake National Park, have been transferred to the Washington Office for the winter.

By transferring the officials directing the administration of the National Parks and Monuments from one post to another, Secretary Ickes hopes to regain for the Service some degree of the intimate organization which characterized it before the assumption of the burden of many emergency activities, with the accompanying large increase in field and office staffs, it was announced.

CENTRAL STATES FORESTRY CONGRESS

Expansion of state and National Forests to include all land submarginal for agriculture and incapable of producing sufficient income to warrant private management, more adequate forest fire control, and the encouragement of forestry on privately owned lands were the central themes of discussion at the ninth annual session of the Central States Forestry Congress, held at Rolla, Missouri, September 29.

Resolutions were passed urging the appropriation of adequate state and federal funds, supplemented with $5,000,000 under the Fulmer Act, to carry out the land purchase program. Similarly, in support of more adequate forest fire control the Congress urged increases in federal appropriations for cooperative forest protection as authorized in the Clarke-McNary Act, and to expand the authorization to $9,000,000. An appropriation of $2,500,000 under the Norris-Doxey Act was urged in order to aid and encourage the development and management of farm woodlands. Supplementing this, legislation by the several member states to assure equitable taxation of timber lands was recommended.

Professor G. B. MacDonald, of the Department of Forestry, Iowa State College, was elected secretary of the Congress.

WISCONSIN SETS GAME BIRD RECORD

The largest game bird propagation program in the history of Wisconsin, and possibly the largest program of its kind in the world, is now nearing completion. Carried on by the Game Division of the Wisconsin Conservation Department, with activities centered at the State Experimental Game and Fur Farm, at Poynette, this program has produced during the year 192,668 game birds, including varieties of pheasants, Chukar partridge, valley quail, and wild turkeys.

In addition, 10,073 breeding birds, of which 9,273 were pheasants, were liberated in Wisconsin in June and July.

High spots of the record-breaking 1938 program, nearing completion in October, include: Distribution of 79,577 day-old pheasant chicks to cooperating sportsmen's groups in fifty-five Wisconsin counties; distribution of 35,000 pheasants from four to five weeks old to state organizations that have cooperated in the rearing of day-old chicks; distribution of 23,592 full-winged young birds as county allotments to sixty-three Wisconsin counties; distribution of 42,146 pheasant eggs to state 4-H club groups, Future Farmers organizations, Boy Scouts, and individual farmers—all these eggs have now been hatched under setting hens and released; production of 17,000 pheasants—12,000 hens and 5,000 cocks—which are being retained at the state game farm as breeding stock for the 1939 program.

In addition to the pheasant program, 1938 has witnessed substantial expansion in Wisconsin of experimental propagation and stocking activities. At the close of this year's breeding season, 354 mature Chukar partridge were liberated in six selected counties; 1,606 Chukars were kept at the farm for breeding stock. Tests have proved that this hardy bird offers excellent possibilities of success under Wisconsin climate and cover conditions. Experimental stockings will be kept under close observation and the Chukar program will be expanded as conditions appear to warrant.

Stocking of wild turkeys in Wisconsin was also continued during 1938. Eighty six mature birds were released in the river-bottom portion of western Grant County in early summer.

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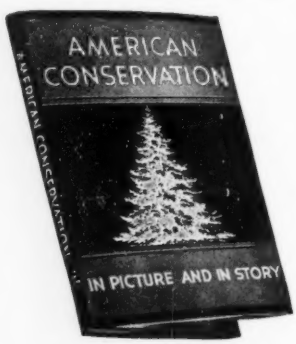

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A NEW WOOD PRESERVATIVE

The Forest Research Institute at Dehra Dun, India, describes a new wood preservative in which the toxic principles of arsenic and copper are fixed by included chromium salts. The mixture, although described in detail, is patented under the name *Ascu,* and during the past three years has successfully met exacting tests of treated wood samples which have been subjected to attack by fungi and termites.

"The important features of *Ascu,*" according to a published report of the Institute, "are that it is cheap and, under all tests so far conducted in the laboratory and in the field, it has shown itself to be an effective preservative. In freshly treated wood it has a high degree of resistance to leaching. This feature has been amply tested both in the laboratory and in the field, in India and other countries, but it remains to be seen whether it will retain this feature over a long period of years. It is clean and odorless, and wood treated with it can be painted, polished, waxed, or varnished. It does not corrode iron or steel and it can therefore be used with perfect safety in metal treating plants. Being a preservative which can be used cold, the plant required for pressure treatment with *Ascu* is comparatively inexpensive and is so simple that any illiterate *mistri,* with a little instruction, can be trusted to treat timber with it."

TRUMPETER SWAN FIGHTS EXTINCTION

Trumpeter swans, the largest North American wild fowl, apparently are just about holding their own in a battle against extinction. According to the Biological Survey, this summer's count of 148 birds in the United States is ten less than last year.

The census made simultaneously by the Survey and the Department of Interior covered the only two places in this country where the birds still nest—the Red Rock Lakes Migratory Waterfowl Refuge in southwestern Montana and the nearby Yellowstone Park.

Most of the nonbreeding birds in southwestern Montana apparently remain on the Lakes in the Yellowstone Park in summer, while the majority of breeding birds use the Red Rock Lakes Refuge. This year fifty-one cygnets, or young swans, were found on the Red Rock Lakes and four on or near Yellowstone Park. Last year the number of young on both places totaled seventy-seven—fifty-one on the refuge and twenty-six in Yellowstone. Ninety-three adult birds were observed this year as compared with eighty-one last year.

On the Red Rock Lakes Refuge the birds have again shown an increase, the count this year showing ninety-seven birds as compared with ninety last year and fifty-seven in 1936. The number of cygnets counted this year was the same as last year, fifty-one, but there was an increase in adults from thirty-nine to forty-six.

The 26,600-acre Red Rock Lakes Refuge was established in 1935.

CCC FLOOD PROJECT PAYS

Robert Fechner, director of the Civilian Conservation Corps, forwarded to President Roosevelt on October 17 a special report prepared by the Army Corps of Engineers, stating that the flood control works built by the CCC in the Winooski River Valley had averted property damage estimated at more than $200,000 during the recent New England hurricane.

In a communication accompanying the report, Director Fechner stated that he had been advised by the Army Corps of Engineers that the Winooski flood control project had "justified its construction" and had virtually paid for itself in recent years by averting heavy flood damages to Vermont cities.

"I take pleasure in advising you," the Director wrote to President Roosevelt, "that the Winooski River Valley flood control project in Vermont, upon which the CCC has been working under the supervision of the Corps of Engineers, United States Army, since the spring of 1933, will be completed this month.

"The Winooski Flood Control works have justified their construction on two occasions. The flood of March 1936, which occurred shortly after the completion of the East Barre and Wrightsville Dams, provided opportunity to observe their effectiveness in preventing flood damages in the cities of Montpelier and Barre. Although the flood resulting from the heavy rains of March 1936 was the heaviest since the 1927 disaster, in which fifty-five lives were lost and property damages were reported as $13,500,000, only minor flooding of basements and small sections of the streets occurred at Barre. The Montpelier flood was essentially limited to basements of buildings close to the streets.

"It is estimated that the detention of flood waters in the reservoirs created by the East Barre and Wrightsville dams prevented property damages which otherwise might have resulted from this one flood in the cities of Barre and Montpelier, to an extent at least equal to, if not greater than the entire cost of the two dams.

"During the recent hurricane and flood in New England the flood detention dams above Barre, Montpelier and Waterbury were subjected to their most severe test. A special report, just received at this office from the Office of the Chief of Engineers, U. S. Army, comments in the highest terms on the flood prevention qualities of the new dams. An excerpt follows:

" 'Once again, the Civilian Conservation Corps dams on the Winooski River performed yeoman service in taming the torrential tributaries which threatened to burst their banks during recent floods and cause widespread havoc in Vermont's capital city and elsewhere in northern Vermont. For the second time within three years the flood detention dams above Barre, Montpelier and Waterbury have held the insurgent Winooski in check.' "

BIG GAME INCREASES IN FORESTS

Most of the big game animals are making encouraging gains in numbers on the 158 National Forests of the country, it is reported.

Careful big game counts and estimates made during the past winter show a total of 1,742,000 antelope, bear, deer, elk, moose, and mountain goats and bighorn sheep as compared to 1,493,000 a year ago. Forest rangers and other Forest Service officers who made the "census" traveled by boat and horseback, on snowshoes and even by airplane to estimate the overwintering herds so that proper hunting seasons and feeding needs can be determined for various areas. The National Forests now provide the principal big game hunting grounds of the nation.

While this year's total game population shows an increase of 150 per cent over the last fourteen years, part of this gain may be the result of more accurate and intensive methods of counting and estimating. Recent additions of land to the National Forest system also may account for some of the increase.

Antelope, deer and elk show the largest increases since 1924. Although antelope are considered a plains rather than a forest animal, it is estimated that about twenty-five per cent of all those in the nation, or more than 17,000, are now reported on the National Forests, an increase of 340 per cent since 1924.

Deer are reported to be the most common of all big game, numbering 1,450,000, an increase for the past year of 51,000 and a 290 per cent increase since 1924. Elk in the National Forests now number 138,000, an increase of 12,000 in the past year and of 260 per cent since 1924. Moose increased nearly 170 per cent from 1924 to 1934, dropped sharply in numbers in 1935 but have now increased to 6,200 or a gain for the fourteen-year period of 138 per cent.

The game animals which have made relatively small gains or have shown slight declines include black bear, grizzlies, mountain sheep and mountain goats. The National Forests now contain 11,700 mountain goat, 47,000 black bear, 670 grizzlies and 8,800 mountain sheep. In addition, the Tongass and Chugach National Forests, Alaska, report 36,000 deer, 530 moose, about 6,000 mountain goat, 1,500 mountain sheep, nearly 7,000 black bear and about 4,500 Alaska brown bear and grizzlies.

The largest numbers of antelope are found on the Coconino National Forest, Arizona, which has 4,070 and the Lemhi National Forest, Idaho, which has 4,000 head.

The Klamath National Forest, California, the Mount Baker National Forest, Washington, and the Superior National Forest, Minnesota, lead the National Forests of the nation in population of black or cinnamon bear with some 1,500 each.

Grizzly bear are limited almost entirely to the National Forests of Montana and Wyoming, the Flathead National Forest, Montana, containing 150 and the Lewis and Clark in the same state 100.

The Ottawa National Forest, Michigan, reports 70,000 deer—more than any other National Forest. The Superior National Forest, Minnesota, has 63,000. The Manistee National Forest, Michigan, has 55,000 deer and the Chequamegon, Wisconsin, 53,000. Other National Forests which report 30,000 deer or more are the Gila, New Mexico, with 33,200; Fishlake, Utah, 43,000; Lassen, California, 35,000; and the Allegheny, Pennsylvania, 43,000.

The Teton National Forest, Wyoming, has the largest elk population—20,000. The Whitman National Forest, Oregon, reports 8,500. National Forests reporting 4,000 or more elk each are the Bitterroot, Idaho, 4,000; Nezperce, Idaho, 4,400; Flathead, Montana, 4,500; Lewis and Clark, Montana, 4,200; Bighorn, Wyoming, 4,800; the Umatilla, Oregon, 4,700; the Arapaho, Colorado, 6,600; and the Olympic, Washington, 6,500.

The Teton National Forest, Wyoming, reports 1,400 moose, the Superior, Minnesota, 1,000, and the Wyoming National Forest, 600.

About 1,400 mountain sheep were estimated in counts on the Teton National Forest, Wyoming, and 2,000 mountain goat are reported on the Mount Baker National Forest, Washington.

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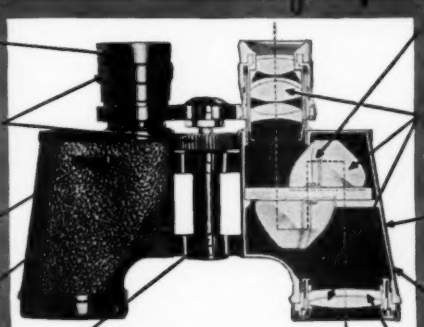

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WISCONSIN'S SCIENTIFIC FISH COUNT

A fish propagation program for the past two years far exceeding that of any other state, has focused considerable interest on the manner in which the Wisconsin Conservation Department keeps accurate check on the number of fish propagated and distributed throughout the state—a number that is in excess of one billion a year.

According to H. W. MacKenzie, conservation director for Wisconsin, the following method is employed—a method based altogether on scientific computations:

"First let it be clearly understood that no estimating of fish propagation figures is tolerated, but that definite scientific computations are made and that all reports are carefully checked.

"All adult fish are hand counted and the figures checked by two men. All fingerling fish are sampled and weighed, a fair sample of the fish to be distributed being taken and the number per pound counted. The total number distributed to each body of water is thus readily and accurately determined.

"In the case of fry a more complex system is used. The number of fry distributed is determined from the number of fertile eggs on hand just prior to hatching. To obtain an accurate count of eggs it is necessary first to determine the average diameter of the eggs to be counted. This is done by means of a six-inch measuring trough in which a fair sample of eggs is placed and counted. A Von Beyer chart reduced to quarts and ounces indicates the exact number of eggs on hand. All infertile or otherwise bad eggs are removed before a final count is made. Fry are planted immediately after hatching.

"The very comprehensive system of checks and balances in effect here precludes the possibility of miscalculations or over-optimistic estimates. A report is sent each day to the Madison office of the fisheries division showing the exact number of eggs received at each station. This report shows the number of fertile eggs on hand each day. A record of each spawntaker's work is maintained for each day of the season. The number of eggs taken by him and the number of fertile eggs cleaned up is recorded.

"A report showing the number of eggs transferred from one station to another is forwarded to the Madison office whenever a shipment is made. A count of these eggs is made by both the shipper and the receiver. A check on the size of eggs is made at regular intervals by the area biologist. Each shipment of fry is accompanied by a fish planting receipt which is signed by the receiving officer who at that time verifies or rejects the count and condition of the fish.

"This may appear to be a very complicated procedure to the layman, but not one of these steps may be omitted if we are to maintain exact statistical records. This method furnishes the Wisconsin Conservation Department with a three-way check on every report submitted by employees of the fisheries division. Spawners' reports must agree with the hatchery reports, and the hatchery reports with distribution reports. Constant vigilance by fisheries supervisors and biologists prevents the age old doubt to creep into fisheries division reports.

"The maintenance of such accurate records of fish propagation in Wisconsin may appear to be expensive to the casual observer. Actual practice, however, proves that this method results in increased efficiency on the part of fishery employees in Wisconsin. The fact that the results of each man's work is compared with the efficiency of his fellow workers gives rise to a spirit of friendly competition and has resulted in a higher standard of public service in the fisheries division of the Wisconsin Conservation Department."

MALLARDS PITCHING

The beautiful etching reproduced on the cover of this magazine is described by the author and artist in "Bishop's Birds" as follows: "Mallards often circle a pond, looking it over carefully for possible danger, until the leader makes up his mind to 'pitch.' There are usually, however, one or two wiser ducks that take some extra circles before they come in. It is interesting to watch a big greenhead, as he approaches the water, spread his tail and feet and put on the brakes with two or three powerful beats of his wings."

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TREE PLANTING IN NATIONAL PARKS

More than two million seedlings, chiefly of spruce, pine and broadleaf species, are in the Yellowstone National Park nursery available to replant areas destroyed by the pine beetle and other causes, according to a recent statement by Secretary Harold L. Ickes. The nursery was established in 1935 as a PWA project to enable the Park Service to engage in large scale replanting or reforesting operations with native trees.

Similar nurseries are in operation in Sequoia National Park, California; Platt National Park, Oklahoma; and in the Great Smoky Mountains National Park, Tennessee and North Carolina, each specializing in the tree varieties native to the park. In the Shenandoah National Park, Virginia, considerable landscaping and replanting of trees and shrubs is under way, as in the other parks, but with stock brought mainly from elsewhere.

NATIONAL SHADE TREE CONFERENCE

Karl Dressel, of East Lansing, Michigan, and L. C. Chadwick, of Columbus, Ohio, were elected President and Secretary-Treasurer of the National Shade Tree Conference at the fourteenth annual gathering at St. Louis, Missouri, September 1 and 2. The meetings, most of which were held in the Shaw Botanical Gardens, were attended by over 300 delegates. In addition to prepared papers with accompanying discussion, there were demonstrations of equipment for tree moving, spraying, soil aeration, and the installation of lightning rods on trees.

The Nebraska plan of cooperation with commercial nurserymen as a part of the farm forestry planting work was described by Director W. H. Brokaw, of the Nebraska Extension Service. Giving special credit to the nursery industry for the part it has played in developing farm forestry in Nebraska, Director Brokaw stated that the Nebraska Extension Service has cooperated with the nurserymen since the first Clarke-McNary money was allotted to the state.

This plan is based on the principle that a small charge for planting stock results in more definite financial interest in planting. As a result, Director Brokaw said: "The farmer, whose land is improved by a windbreak demonstration, pays a handling, packing, and shipping charge on the stock, and plants and maintains the demonstration. Broadleaf stock is purchased, under contract, from the Nebraska Nurserymen's Association and evergreen stock from the Forest Service Nursery at Halsey, Nebraska." Under this plan 34,000 trees were sent to farmers in 1926. The project grew until 1937 when 1,600,000 were sent to farmers through the county farm bureaus. Since 1927 the number of farmer cooperators has ranged from 3,500 to 4,600 each year.

TO HONOR DR. CHARLES H. HERTY

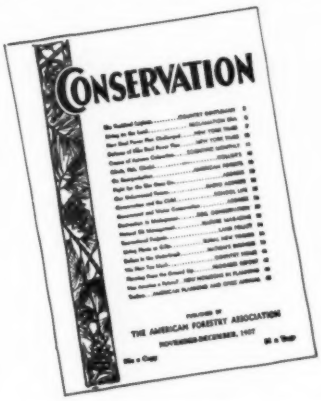
Part of the program for the Slash Pine Forest and Farm Festival at Lake City, Florida, November 14 to 19, will be the dedication of local reforestation projects throughout the slash pine belt to the late Dr. Charles H. Herty whose work in the pulp-paper industry has meant so much to forestry in the southeastern states.

The state governments of North and South Carolina, Georgia, Florida, Alabama and Mississippi are cooperating with the Slash Pine Forestry Association in presenting one of the greatest expositions in modern forestry, combined with progressive farming.

Lake City is the center of reforestation and demonstration and experimental projects for the utilization of forest products in Florida and South Georgia. Here are located the state headquarters for forest fire prevention and the Osceola National Forest.

Governors, educators, industrial leaders and others will form a Herty Memorial Committee whose work will be the promotion of conservation projects in the various sections of the slash pine belt and the dedication of these projects as "Herty Memorial Forests" in commemoration of Dr. Herty's work in demonstrating the use of pine pulp for the manufacture of paper.

BRIEF — AUTHORITATIVE



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The American Forestry Association

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Your Opportunity To Pay Tribute To Fire Heroes

Forest fire fighting in this country is the most arduous and hazardous task which a forester, or a forest protective employee is ever called on to perform. Not only may an individual's life and limb be endangered but oftentimes sole responsibility falls upon him for hundreds of thousands of dollars worth of public resources or property as well as for the safety and lives of other fire fighters. Because of this, fire fighters are often called on to display in the highest degree qualities of courage, judgment, quick thinking, and coolness and under extreme emergency conditions. These qualities heretofore have been formally recognized in some specific cases merely by letters of appreciation and commendation from those higher in authority. It is proposed hereafter to recognize outstanding cases of personal heroism in fire fighting by the award of a bronze medal to be known as the American Forest Fire Medal.

PURPOSE

The basic reasons for such an award are (1) to show public appreciation to individuals for outstanding acts or actions under unusual stress or difficulty on forest fires which exhibit the highest degree of personal courage, judgment, and initiative in fighting forest fires anywhere in the United States, and (2) to stimulate and maintain morale of all persons engaged in or responsible for protection of forests from fire.

ELIGIBILITY

Any individual may be eligible for the award after unquestionable evidence is presented that he has performed an act worthy of consideration for such an award.

EVIDENCE

Evidence of such acts of heroism or bravery, judgment and initiative on an actual forest fire shall consist of sworn statements from at least two eye-witnesses of the heroic act, or from persons personally familiar with the entire circumstances of the act. The award may be posthumous.

COMMITTEE OF AWARD

A group of not less than 3 nor more than 5 persons shall constitute a Board or Committee of Award to pass on all applications, evidence and proof of individuals recommended for the Award. This Board shall finally decide by unanimous vote on all recommendations or applications presented which should be made directly to this Board by any responsible person having knowledge of such heroic acts on forest fires. The Board shall consist of representatives to be selected by the following organizations:

American Forestry Association,
Society of American Foresters,
Pack Forestry Foundation,
Association of State Foresters,
The National Lumber Manufacturers Assn.

The representative of The American Forestry Association shall be chairman of the Board, which will conduct its deliberations either by correspondence or at such meetings as it shall consider necessary. The Association will sponsor and handle all matters pertaining to this Award.

ESTABLISHMENT OF FIRE AWARD FUND

In order to establish this Award on a permanent basis, a fund or foundation of not less than $3,000 is believed necessary. Contributions totalling $230 already have been received. Your assistance in establishing this fund is hereby solicited. It is believed that foresters, forestry, park, and all forest protection associations, as well as conservation and wildlife groups will welcome the establishment of such an Award and will want to contribute towards its foundation. Contributions of $1.00 or more from individuals and larger amounts from organizations will be welcomed.

Contributions should be sent to:

THE AMERICAN FORESTRY ASSOCIATION
919 SEVENTEENTH STREET, N. W.
WASHINGTON, D. C.

ASK THE FORESTER

Forestry Questions Submitted to The American Forestry Association, 919 - 17th St., N. W., Washington, D. C., Will Be Answered in This Column. . . . A Self-Addressed Stamped Envelope Should Accompany Your Letter.

QUESTION: What is *Pinus macrophylla*?—J. B. W., D. C.

ANSWER: This is the rough barked Mexican pine whose more generally accepted scientific name is *Pinus Montezumae*, Lambert. The long, spreading leaves are usually in clusters of five, but vary from three to eight, according to the vigor of the tree and the climatic conditions under which it grows. It is apparently of limited commercial value in the tropical and temperate regions of Mexico, at elevations of 4,000 to 12,000 feet above sea level where it attains heights of around seventy feet.

QUESTION: Are the New England States doing anything to combat the European spruce sawfly now so active in the northern part of that range?—R. E. S., New York.

ANSWER: In the course of a general campaign for control, the State of Maine, in cooperation with the Federal Bureau of Entomology and Plant Quarantine, recently liberated many million parasites introduced from Europe to prey upon the sawfly cocoons.

QUESTION: What makes the leaves of so many trees change color and drop off in the autumn?—R. C. C., D. C.

ANSWER: This is part of the tree's preparation for winter. The cool nights and days of late summer and fall slow down the growing processes of the tree and bring to an end the work of the leaves. Gradually the food substances are withdrawn into the wood cells, leaving a watery substance in the leaf cells. Mingled with the watery content of the leaves are fine oil globules, crystals and some strongly refractive yellow bodies. Where there is more sugar or starch in the leaf than can be transferred back to the tree, the leaf develops the brilliant colors so characteristic of the maples, gums, and dogwoods.

QUESTION: Is it possible to establish beaver in the steep, narrow canyons of southern California, where the weather is mild and where cottonwood, alder, and some maple trees now grow?—H.F.P., California.

ANSWER: Representatives of the Biological Survey are doubtful if such introduction would be successful. The region is not within the ancestral range of the beaver, and there is no assurance that there would be sufficient natural food to maintain their colonies.

NEW BOOKS

THE NATION'S FORESTS, by William Atherton DuPuy. Published by the Macmillan Company, 60 Fifth Avenue, New York City. 264 pages. Illustrated. Price $3.00.

Possibly the most readable of recent authoritative books on forestry in America is William Atherton DuPuy's "The Nation's Forests." Facts, figures, and graphic descriptions of specific areas and activities on National Forests are woven through the text to clarify the government policies in relation to the acquisition, use, and development of the federal forests. Featuring the book is an unusual array of 170 well chosen photographs showing the variety of work and problems faced by the forest officers and their assistants.

In a brief introduction, Chief Forester F. A. Silcox comments that "For the most part, those of us who handle forest problems are technical men. We are very close to our tasks. It seems difficult for us to tell, simply but graphically, about the vast public properties entrusted to our care; about what those properties are, how they are used, how —directly and indirectly—they affect the average citizen; how they make more jobs; how they add to the security and stability of families and communities, and increase the permanent wealth of a nation."

"It is, therefore, a pleasure when a writer like Mr. DuPuy, whose province it is to translate complicated subjects into easy and pleasant reading, becomes interested in our work and in your National Forests."

From the opening page Mr. DuPuy makes clear that the nation's forests are every man's forest. Dividing the total area of nearly 175,000,000 acres in National Forests among the 130,000,000 American citizens, the author opens with the thesis that "each of us has a wooded estate of an acre and a third."

One learns that the forests are primarily for use and that the custodians of these forests are using every available means to maintain them in their greatest productivity. While emphasis is given to the tasks of forest protection, planting, and erosion control, and considerable attention is given to the wildlife resources and the possibilities for recreation, many will turn with special interest to the chapter on sustained yield.

"The Nation's Forests" promises to help remove forestry from the academic field of text books on the one hand and from the field of pure romance on the other, so that its readers may understand the important place that forests occupy in the national economy.—G. H. C.

SOUTHERN FORESTRY, by Charles N. Elliott and M. D. Mobley. Published by Turner E. Smith and Company, Atlanta, Georgia. 494 pages. Illustrated. Price $1.60.

Remarkable for the use of simple, direct English are the chapters in "Southern Forestry." As distinctly sectional as its title, the authors — one a forester and the other a school man — present a complete and surprisingly interesting picture of forestry in the eleven southern states. Frankly describing it as a text book for "the upper elementary grade level," Forester Elliott and Vocational Education Director Mobley tell the story of a natural resource producing millions of dollars in income for southern landowners, and providing employment for more than one-fifth of the industrial workers of that region.

Assuming that a changed public attitude toward the forests is "an educational task in which the public schools must play an important part," every effort has been made to present the vital significance of the subject. The chapters proceed with such logical sequence, and the illustrations so effectively lead from one feature to another that youngsters will turn ahead from an assignment on "Our Forest Resources" to read "How Paper is Made," or to learn more about "The Naval Stores Industry."

Southern Forestry goes a long way toward meeting the ideal of presenting factual information interestingly and it is a reliable reference book.—G. H. C.

Christmas Gifts

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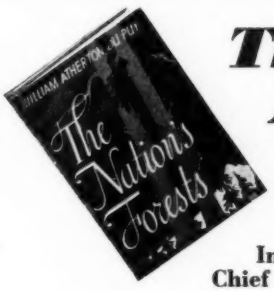

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THE RANGER'S CORNER

RANGER MEETS BEAR

But His Scheme Goes Haywire—Along With His Alibi

By A. B. Bowman

So late did the forest fire season extend into the year that it remained for a blanket of snow to announce its eventual end. Even though western mountain weather is noted for its inane lack of sense, a snowfall of six inches is not the usual answer to a firefighter's prayer.

As merrily as can be expected of one who has just spent three months of continuous fire fighting, Ranger Byers went about releasing the amalgamated array of mountain natives and "box-car tourists" from their twenty-day bondage served in the "anti-red" army. Moreover, he had a surviving sparkle of wit for each piece of miserable, summer-clad humanity disappearing down the trail leading to civilization and better climes.

The ranger spent the remainder of the morning stepping off the perimeter of what was once the fire. Then leaving his assistant behind to lend a shoulder at hoisting the snow covered loads to steaming mule backs, he also followed in the broken trail down to the packers' camp, the beginning, from that end of the picture, of all vehicular traffic.

His mind was soon lost in ways and means of catching up with his other field plans, his back reports, and, to his credit, a bit of private business having to do with bath tubs, razor blades, cigars and easy chairs. Occupied thus, the miles of boot-printed trail sped by almost unnoticed.

He was but a short distance from the Packers' Camp when an unfamiliar sound brought him to a halt. Glancing around he found a small bear cub absorbed in digging out a root just off the trail. Sheer enthusiasm sent him charging in the cub's direction. Taken by surprise, the little fellow immediately went up a tree, sending a shower of loose bark down on the ranger's upturned face.

"Nice fat cub," he thought. "Has had good bringing up to look so well during this season."

Knowing that small cubs are usually accompanied he instinctively scanned the brush for the mother bear. It took no fine scrutiny for she, with another little black, soon ambled out into the open to analyze the trouble.

Byers saw nothing but that large, shining, black hide gracing the bare floor of his ranger station. How awful the cubs might feel about losing their only interested parent and guiding light did not occur to him.

"Bears have been a nuisance this summer anyway," he breathed, in support of his thoughts. "Their lawless and destructive raids on unguarded trail camps, food caches, and whatnot have proved enough to strain the sweetest temper."

Ma bear, being quite near-sighted and always curious, began her usual circling to get the wind and a better look of whatever had caused this disturbance. To the missing cub, she whined her feelings about the matter.

To put her at ease, the ranger went about a hastily conceived plan to keep the smaller bear up the tree and therefore the large bear in the neighborhood. He threw off his pack sack and strapped it around the tree; he also draped his coat around the lower stubs, added his hat to the array, and for good measure threw a few snowballs up at the cub to send it higher into the top limbs. All of this was regarded with suspicion by the complaining and coaxing mother.

Taking off down the trail again, only on the run this time, Byers remembered that old Tommy Deigan had a gun of some description adorning the walls of his cabin close to the packers' quarters. "Should be able to get it if old Tommy is at home," he mused.

His long legs covered the distance to the camp even sooner than expected. He dashed through it unnoticed, crossing the creek to the homesteader's little cabin.

"Of course you can have the gun," Tommy said after listening to the rangers' hasty explanation. "It hasn't been used for several years, still the magazine is full and the mechanism apparently in working order. Go to it, but remember where I live when you come by with the meat."

"It's yours," offered the ranger, rather prematurely.

He raced back to the line-up of saddled horses and pack mules. Miller, one of the packers, was looking out of the tent close by as Byers explained between puffs that he was going to use one of Uncle Sam's "knot-heads" for a few minutes.

With mud and water plastering the snowscape, he rounded the last bend in time to see the cub just executing a movement over the arranged obtrusions. The ranger's first impulse was to shoot from the saddle. He even cocked and leveled the gun before remembering the flighty nature of the animal beneath him. He proceeded then to dismount by laying the barrel of the rifle partially along the horse's neck, and looping one foot out of the stirrup. The arc was in progress when the gun in his left hand discharged presumably into the air. A raring jump combined to bring about a dismounting that is seldom witnessed in Montana. Picking himself out of the snow, Byers' first thought was for the welfare of his mount, but noting him measuring off the distance to camp like a Man O' War, he turned his attention again to the bear problem.

The family was just disappearing into the undergrowth. Firing a disgusted shot into the waving brush, Byers let his vocabulary dwell briefly on the turn of events. Upon investigation he found the bullet lodged in a tree a good twenty feet wide of its mark. He also checked over several causes and effects, sufficient to prove that the gun was actually unsafe to be anywhere away from its old familiar place on the wall at Tommy's cabin, not to mention its unspeakable accuracy of barely keeping within a one yard radius at a "paced ten."

Solemnly he marched campward, the edge temporarily gone from his spirit. As a bear hunter he rated himself with the proverbial zero.

Going out for bear and almost returning with a dead horse was too good to be let out on oneself. "Oh well," he reflected, "I have never won any turkeys on Thanksgiving Day shoots or boasted of my prowess with artillery of any sort, so to say that my shots went wild and that the horse became confused and left in the din, would be explanation fitting enough."

Preceded by a movement in the brush on either side of the trail, a packer stepped out from each direction, six-shooters drawn and, judging by their facial expression, plenty perplexed. Rather mystified, but presuming that an explanation was in order, Byers launched out bravely with his revised version of events. Having finished, it was still evident that he had not succeeded in expelling the puzzled look on each face. Although followers, they were still far from believers.

"If yet a mystery, you might in turn give reasons for the war-like appearance," he added defensively.

As it happened, the evidence produced by the bewilderd packers was easily sufficient to bring about a confession.

Would you care to uphold the ranger's alibi? If so, let us see what the packers have to say.

Byers tore out of camp with a rifle! A shot! The riderless horse returned in a few minutes, shot through the roots of the hair just under the mane and bleeding out of all proportion to the seriousness of the injury! Other shots followed!

As the facts stood out, they reasoned this way. "Somebody must have dropped Byers out of the saddle and the battle was on. They, as part of his district force, must move on to his rescue."

Could you blame them?

SCIENCE AND EQUIPMENT

SPEED MAINTAINER

The Allis-Chalmers Manufacturing Company has just announced the "speed maintainer," a new finishing and maintenance tool designed for the use of state, county and township highway divisions, park boards, and others interested in road development.

The speed maintainer is one-man operated and will maintain the average earth or gravel roads at from three and one-half to four and three-quarter miles per hour. It has proved a fast, low-cost means of breaking up big clods and leveling behind blade and elevating graders. It is mounted on pneumatic tires and has a top speed of nine miles an hour.

ROAD STABILIZATION

The Calcium Chloride Association, organized for the study of developments in the field of calcium chloride usage, has announced the results of a number of experiments conducted by government agencies in an effort to show the way to low cost road improvement. The agencies which have made these tests on road stabilization include the Works Progress Administration, the National Park Service, the Tennessee Valley Authority, the Resettlement Service, the Civilian Conservation Corps, the United States Forest Service and the Federal Emergency Relief Administration. The basis of these experiments has been the consolidation of local soil materials treated with calcium chloride.

"99" MOTOR GRADERS

The Austin-Western Road Machinery Company has just furnished nine A-W "99" motor graders for operation in National Forests — six near Missoula, Montana, one near Portland, Oregon, one near Seattle, Washington, and one at Elkins, West Virginia. The new motor grader has many advantages for National Forest work. The four wheel steering provides shorter turning radii than the conventional type, and because of this these machines can do work on the inside and outside of sharp curves. Under adverse traction conditions, drive on both front and rear wheels is essential, especially under isolated operating conditions where one operator is working without the assistance of other men or machines.

HOUR METER FOR DIESEL ENGINES

The Caterpillar Tractor Company hour meter is now standard equipment on three, four and six-cylinder Caterpillar Diesel engines.

This meter was first made available as an attachment about two years ago. It is attached to the rear of the fuel-injection-pump housing and is driven by the end of the fuel-injection camshaft. The meter registers one number for every hour the engine operates at standard rated speed.

NEW JERSEY FIRE TRUCK

A new type of forest fire-fighting apparatus mounted on a Ford V-8 cab chassis is being rigorously tested and studied by the New Jersey Forest Fire Service. According to State Firewarden LeRoy S. Fales, the adoption of such mobile apparatus is a decided departure from all previous forest fire extinction equipment in New Jersey.

Three of the new units have been placed in service and six others have been ordered to supplement forest fire-fighting equipment in New Jersey.

Plans were made which called for a mobile unit which could carry at least 500 gallons of water and approximately 10,000 feet of one-inch to one and one-half inch linen hose.

With over 300 pounds of pump pressure available from the 85-horsepower Ford engine, officials determined that the new apparatus could produce a wide range of solid mist, fog and spray fire streams. Using the tank alone and with no water source at hand, it was proved that the unit was very effective for a limited time.

This new fire fighter is outfitted with two-way radio. Operators of the unit will be in touch at all times with other forest fire cars and airplanes during a fire. The apparatus can be driven to a water source and the tank drafted full in two minutes. With the 400-gallon-per-minute pump mounted in front of the engine, the apparatus is capable of boosting water over 600-foot elevations. It also is designed to receive water from other pumpers and relay to any point desired.

Equipment on the truck consists of such articles as fire brooms, shovels, axes, lanterns, boots, coats, smoke masks, special hose fittings and various accessories.

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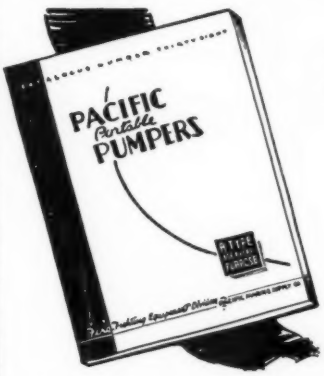

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By Ovid Butler

This volume presents a clear picture of America's organic natural resources, the part they have played in the development of the nation, the manner and consequences of their use, and the spread of the conservation movement from its beginning in the United States down to the present time. 144 pages. **Price $2.50.**

FOREST FIRE AND OTHER VERSE, *Collected and Edited by John D. Guthrie.* For those who love the out-of-doors, this collection of verse and songs brings the feeling of melody and rhythm, pathos and humor of life in the open. More than 300 well known ballads and many new poems. 321 pages **Price $1.50.**

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DEFEATING FLOODS

(*Continued from page* 512)

page present an outpost against the unheralded approach of flood-creating rainfall. Particularly in the Bureau's aerological service is there an effective safeguard, for this service prepares at each of the principal airports of the country a weather map every six hours. Present-day meteorology is rapidly learning to interpret upper air characteristics in terms of surface weather, so that we may expect in the not too distant future to have the benefit of three to five-day weather forecasts.

We have discussed, thus far, those phases of the service that are sufficiently tangible to be assigned a specific cost, based upon such matters as the salaries of qualified technicians and the purchase of instruments. It is estimated that the expanded service for the entire nation could be accomplished within one per cent of the average annual flood damage cost. But more is needed than the facilities to assemble the data and formulate forecasts. The ordinary channels of dissemination, such as the newspaper and routine radio broadcast, lack the authenticity to sustain public interest and to prevent delayed reaction that so often sacrifices the real opportunity to prepare. Too often the flood forecaster experiences the frustration of having to stand helplessly by and watch the tragic effects of disregarded warnings.

This places squarely before us the question of community responsibility. In respect to reality, destructiveness, and possible protection, flood hazard closely parallels fire hazard; and the community's obligation to deal with them is as clear in the one case as in the other. Indeed, beyond physical means of flood control works, the situation can efficiently be met by a form of flood insurance under which, as in the case of fire insurance, it will become somebody's business to see that precautionary measures are enforced.

An investment in a home, a store or a factory in a zone subject to flooding need not be heavily depreciated through vulnerability to flood damage. That such properties are subject to damage is not to be denied; but the extent of the damage can be reduced. The photographs present unhappy pictures of a home and industrial plant left open unnecessarily to every possibility of flood damage. These would have been different pictures indeed if the following comparatively inexpensive protective measures had been available when the flood warnings were issued: (a) The water itself could not, of course, be kept out, but shutters and battens at the doors and windows could have prevented the entry of heavy floating debris; (b) supports could have been provided to raise the larger pieces of furniture to ceiling height and to anchor them there, (c) the houses could have been secured against displacement from foundations through proper anchorage and bracing. As fire insurance makes the type of flue and the accessibility of a fire escape considerations in fixing the amount of a fire insurance policy, flood insurance would have insisted upon the above-named precautions. Had the flood warning been properly heeded the cost of the flood's action here would have been very materially reduced.

Many storekeepers suffered with even less excuse. If they had no higher floor level to receive stock, they should have—in advance of the flood threat—arranged for evacuation, preferably through a local committee organized for that purpose. One has but to witness the precautionary destruction of vast quantities of foodstuffs after every major flood to appreciate the potential reductions in flood losses from this source which could be effected through an adequate preparation-opportunity.

Industry alone seems to be alert to the possibilities of the economy of preparedness, and unnecessary losses were becoming less frequent with every flood. Many industries maintain routine contact with the forecasting office and cooperate in providing river and rainfall observers. Where protection is not feasible, physical damage may be all but eliminated in structural planning and in the pre-arranged disposition of movable stock, machinery and plant.

As the modern automatic fire alarm system is to be credited largely with the immunity we now enjoy from the catastrophic conflagrations which occurred all too frequently throughout the past half century, so should a modernized flood forecasting service pave the way to a more intelligent use of our river valleys.

ASSOCIATION BOARD MEETING

(*Continued from page* 513)

states, counties, municipalities, and private enterprise. To a considerable extent this assumption may be true in the poorer sections of the country, as for instance in parts of the South. In such cases, it may be desirable that funds be made available by the Federal Government to supplement those contributed by the local units, such funds, however, to be administered by state or local officials. It is our belief, however, that in most sections the lesser political units are capable of taking care of this problem. We believe that it should be put up to them to do so rather than to look to the Federal Government to do everything for them. In the case of com-

munities obviously unable to care for their own properly, a satisfactory method of assuring a degree of Federal aid ought to be possible to work out. Despite the importance of this problem, which we fully recognize, we feel sure that a more satisfactory solution can be reached on a basis of local initiative and self-help, than on one of having Uncle Sam do it all for us.

"That there is need for coordination of present Federal activities in recreation, is generally agreed. One suggestion is that a Federal Council on Recreation should be set up for this special purpose. Another, made by a member of our Board, proposes that the National Resources Committee, when made permanent, as proposed in the defunct reorganization bill, should become the actively coordinating agency of the Government, at least in all questions concerned with natural resources. A third proposal is that of a so-called Government 'Clearing House,' apart from the National Resources Committee, which, by examination in advance of all engineering projects and resource restoration plans, would prevent the frequent conflicts which now prevail, and forestall needless impairment or destruction of natural values.

"Recreation, like conservation, now concerns several governmental departments, two importantly. In our belief, it is as futile to talk of coordination of recreation by putting all agencies concerned with it into one department, as to talk of coordination of conservation by a similar method. Although an expression of opinion on this point may be somewhat beyond the scope of the study assigned our committee, we cannot forbear to record our belief that a body outside the Executive Departments is needed, not only to plan ahead the various federal activities needed for proper care and development of our natural resources, but also fully to coordinate them and secure the fullest efficiency in their execution. Such a body could also coordinate the federal activities in recreation.

"One member of our committee expresses the opinion that 'The weakness of government participation in recreation facilities in public forests is on the moral side.' He believes that 'The Government should either organize or link up with a strictly non-governmental organization that will supervise the actual recreational activities.' He suggests 'a national committee with state committees that would have the responsibility for setting a moral standard for recreational centers.' He continues — 'The steps that have already been taken to popularize nature study, hikes to National Forests and natural history museums, could all be coordinated in the type of work which I have in mind.' This suggestion is somewhat along the line of development suggested by the Chief Forester, and would put the Forest Service more definitely into the recreation business than it now is, though in this instance probably acting through private organizations. If, as another person has suggested, 'the highest value from a "human use" or even an economic standpoint of a large part of our forest land is for recreation of one kind or another,' then it may be that recreation is as much a primary duty of the Forest Service as it is that of the Park Service.

"In spite of the praiseworthy objectives of a wide extension of Federal participation in recreation, your committee believes that, as in other fields, Federal activity can easily be carried so far as to sap that local initiative which can and should provide recreational opportunities and guidance in matters which are primarily of local concern. Nothing can compensate the country for the loss of that spontaneity and originality which has its basis in the assumption of responsibility by the people who themselves will chiefly benefit. A top-heavy bureaucracy in Washington would be likely to impose a standardized type of recreation which would savor more of regimentation than of democratic self-expression. Government-constructed, graded foot and horse trails can never take the place of simple paths cut through the wilds by the willing labor of volunteers, nor can hurrah-boys nature walks ever fill the place of small parties of real lovers of nature seeking knowledge through their own efforts under leaders of their own choosing. Both types of recreation doubtless have their place, but there is no justification for imposing one at the expense of the other. We believe, therefore, that extensive 'developments' by the Federal Government should be discouraged rather than stimulated. It is the part of wisdom to allow some of God's country to 'lie outdoors,' open to reasonable use by those who benefit by their own contacts with it, unaided by the Federal Government."

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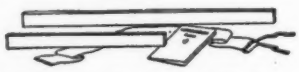

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LOG BIRLING TODAY

(*Continued from page* 507)

when Jimmy Herron, of Kelso, Washington, walked off with top honors—the Lions Cup and $560 in cash prizes—winner of the 1938 World's Championship Log Rolling Tournament.

Spinning and snubbing the logs with uncanny ability and thrilling sureness, birlers from the Pacific Northwest carried off the lion's share of the 1938 trophies and prize money. Harley Foster, of Aberdeen, Washington, was runner-up in the final match and won $250 and Bob Craig, of Kelso, Washington, took the fourth prize of fifty dollars. Jimmy Running, of Eau Claire, Wisconsin, was the only timber spinner from the Middle West to carry off any prize money, with third honors and $100 in cash.

Although the men's birling title moves West as a result of the 1938 matches, the girls' championship remains in the Middle West, for Mary Jean Mallot, of Bloomer, Wisconsin, established her claim as queen of the women's birling world when she took the Kiwanis championship cup.

The Girards—father and son—of Gladstone, Michigan, still held top place in the trick and fancy birling for teams of two in the 1938 contest.

Despite a strong wind out of the southwest on all three days of the roleo this year, which proved a definite handicap to the birlers, it was a great show—much merriment and a fine exhibition of smooth skill in a tricky game requiring the swiftest action, strength and perfect control. Intersectional rivalry was apparent from the beginning, but Westward Ho! seemed the triumphant slogan for 1938, as the loggers carried back prizes and honors to the Pacific Coast.

TRAIL RIDERS FOR 1938

The last of the four expeditions undertaken in 1938 by The American Forestry Association's Trail Riders of the Wilderness was successfully completed on September 1 with the return of nineteen men and women from the fastness of the High Sierra of California. Other expeditions earlier completed were into the Maroon Bells-Snowmass Wilderness, of Colorado, into the Gila Wilderness, of New Mexico, and into the Wind River Wilderness, of Wyoming. The following Trail Riders participated in the 1938 expeditions:

Wind River Wilderness, Wyoming: David T. Beals, Kansas City, Missouri; Kingsland Camp, New York City; Marjorie Fay, Chicago, Illinois; Mrs. L. F. Gates, Wilmette, Illinois; Ethel L. Hanson, Orange, New Jersey; May A. Martin, South Orange, New Jersey; Clara Noerenberg, Spokane, Washington; William J. Schukraft, Chicago, Illinois; Dr. and Mrs. W. A. Shannon, Washington, D. C.; Mrs. Dwight Taylor, Washington, D. C.; Colonel C. R. Van Etten, New York City; Louis Weickum, New York City; Mary Ann Woodard, South Orange, New Jersey; and A. C. McCain, Jackson, Wyoming, representing The American Forestry Association.

Gila Wilderness, New Mexico: Mr. and Mrs. C. V. Beimfohr, Detroit, Michigan; Emma L. Bolzau, West Collingswood, New Jersey; Mr. and Mrs. Erwin D. Canham, Washington, D. C.; Blanche Eames, Taunton, Massachusetts; Dr. Joseph L. Meyer, Chicago, Illinois; Mr. and Mrs. John O'Donnell, Washington, D. C.; Harold B. Stabler, Washington, D. C.; and Erle Kauffman, Washington, D. C., representing The American Forestry Association.

Maroon Bells-Snowmass Wilderness, Colorado: Anna Armstrong, Rutherford, New Jersey; Frances M. Benson, Pittsburgh, Pennsylvania; Mildred Biddick, Denver, Colorado; Carolyn Bowen, Marshall, Michigan; Mrs. R. M. Burlingame, Denver, Colorado; Maxwell Case, Washington, Michigan; Dr. I. H. Chilcott, Evanston, Illinois; Dr. T. E. Conley, Park Ridge, Illinois; Jack Conley, Park Ridge, Illinois; Caroline M. Doe, Hartford, Connecticut; Elizabeth Galloway, Washington, D. C.; Robert Galloway, Washington, D. C.; Frans Hoyer, Brooklyn, New York; Mary W. Huntington, Charlotte, Michigan; Lillian M. Judd, Waterbury, Connecticut; B. G. Odescalchi, Pine, Colorado; Phillippa C. Patey, Newtonville, Massachusetts; C. A. Peregrine, Denver, Colorado; Grace M. Price, Pittsburgh, Pennsylvania; Julia H. Recker, Watertown, Connecticut; Mary W. Ruffner, Denver, Colorado; Edward M. Ruppe, Cleveland, Ohio; Charles K. Seaman, Jr., Perth Amboy, New Jersey; Ellen Virginia Seaman, Perth Amboy, New Jersey; Ruth Smith, Denver, Colorado; Emma L. Wilder, LaCrosse, Wisconsin; David L. Williams, White Plains, New York; Mary Ann Woodard, South Orange, New Jersey; and Ovid Butler, Washington, D. C., representing The American Forestry Association.

Kings River Wilderness, California: Mr. and Mrs. Oscar N. Anderson, Long Beach, California; Emma L. Bolzau, West Collingswood, New Jersey; Shirley A. Brandes, Santa Barbara, California; Granville P. Dorman, San Francisco, California; Mary Downing, Kansas City, Missouri; Dr. L. A. Juhnke, Chicago, Illinois; Franklin A. Kales, Jr., Orinda, California; Janet Virginia Lee, Wilmette, Illinois; M. Louisa Long, Santa Barbara, California; Marian Mair, Oneonta, New York; Bruce Nichols, Santa Barbara, California; George Openhym, Hartsdale, New York; Ella M. Ottery, Santa Barbara, California; Jessie Saunders, San Francisco, California; Colonel C. R. Van Etten, New York City; Carol Van Etten, New York City; William M. Weis, San Diego, California, and Erle Kauffman, Washington, D. C., representing The American Forestry Association.

NEW ENGLAND'S STORM-STRUCK TREES

(*Continued from page* 492)

twenty-two per cent.

"West of the Connecticut River there is two per cent damage and east of the river fifty-seven per cent. The State being predominately hardwoods, the estimate of the down material is eighty per cent hardwoods and twenty per cent softwoods. Naturally there is a considerable amount of breakage, no estimate of which has been made.

"The main problem now is one of salvage but a serious marketing problem also exists. Since the annual cut in recent years has been about 10,000,000 board feet, the material now on the ground represents fifty years normal cut. However, with proper financing and a practical method of storage and distribution, it is believed that much, even most, of this material can be salvaged and that losses can be greatly reduced for all concerned individuals, communities and the State."

Perry H. Merrill, State Forester of Vermont—"The storm did an enormous amount of damage to timberlands in the State of Vermont, the same as elsewhere throughout New England. Some of the most serious damage was to the sugar orchards. Some orchards of 3,000 trees have only about half of them left standing. In some of the smaller orchards of one hundred or more trees, practically every tree is flat upon the ground. A fairly extensive estimate made in several of the towns in the northeastern part of the State which are completely timbered show that twenty per cent of the commercial timber is on the ground. Probably for the eastern half of the State this twenty per cent figure will apply throughout. Great damage has been done to our communities by the loss of many of the fine old elm trees one hundred years of age or older. Considerable property damage occurred as a result of the falling of these trees upon the houses. For instance one large elm fell across the rear end of my house.

"We have a committee appointed by the Governor which is working out a plan to salvage saleable timber. The object of the plan is also to prevent depression of prices. The Governor hopes that the local banks will make loans for timber stored in bonded yards."

William G. Howard, Director, Division of Lands and Forests of the Conservation Department of New York—"We have no accurate figures to give you a really worthwhile estimate. Outside of Long Island, the damage, except to shade trees, is not very much greater than damage done by any high wind. Even on Long Island the limited use of trees in that area for timber means that the damage is similar in character to that done to shade trees.

"Shade tree damage, particularly on eastern Long Island, is terrific. It is so extensive that I am unable to estimate it. If you must have a figure, I would say that a minimum of one million dollars could safely be set as a figure. It may be far higher than this."

As regards the damage to shade and street trees as observed and estimated by Dr. Felt, the following is quoted from his report to AMERICAN FORESTS:

"The hurricane of September 21 destroyed or severely injured approximately a million large shade trees in the storm swept area. The damage to shade trees was most severe along the coast of Long Island, particularly the eastern end, in southeastern Connecticut and Rhode Island. There was great damage in portions of Connecticut and Massachusetts, mostly east of the Connecticut River Valley and eastward excepting much of Cape Cod. There was also serious damage in portions of New Hampshire and Vermont.

"In the metropolitan area surrounding Boston, there was general and widespread destruction of both large and small trees. It is stated that 200,000 trees were leveled in Massachusetts highways district number eight, most of this in the Connecticut River watershed, and that $5,000,000 is necessary to clear away fallen trees. It is reported that 5,000 trees in Roger Williams Park, Providence, were blown down and 1,200 trees in two parks near Pawtucket.

"Severe damage was restricted mostly to large shade trees in the thickly settled areas of cities and villages, the greatest injury in many cases being in parks, village greens or commons, the shaded campuses of educational institutions, cemeteries, and park-like areas on the larger estates. It seemed as though the buildings usually surrounding such areas deflected and intensified the fierce gusts into extremely destructive eddies. On the grounds of Wellesley College 300 trees were reported blown down. It was estimated that 200 were wrecked or severely damaged on the grounds of Amherst College and about 100 at Mt. Holyoke College. Twenty trees were left from 140 on the grounds of Wesleyan University. The small town of Amherst, Massachusetts, lost an estimated 2,500 trees and nearby Hadley some 400, about 150 of these being on the two widely known broad streets each with four now sadly mutilated rows of ancient elms.

"The old trees on city and village streets suffered greatly. In one case, all were down on a street for about a half a mile. Generally it was groups here and there of ten to twenty trees, evidently the work of local gusts. The extent of tree losses in municipalies is suggested by the following: Newark, New Jersey, 2,000; New York City, 2,700 killed and 4,250 damaged; Hartford, Connecticut, 10,000 trees; Springfield, Massachusetts, nearly 17,000 trees; Greenfield, Massachusetts, 700 blown down and 3,000 damaged; Worcester, Massachusetts, 15,000 street and park trees, the cost of replacing these last

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being estimated at $100,000; and 15,000 blown down in the parks and parkways of Greater Boston.

"Storm damage to trees was near the maximum in Rhode Island and southeastern Connecticut. Historic Old Lyme lost possibly twenty-five per cent of the trees in its center. The appearance just after the storm was characterized as a shambles. The same was true to a large extent of both Saybrook and New London, Connecticut, and Westerley, Rhode Island. Clinton lost thousands of trees, and historic Lancaster mourns the destruction of many stately elms. It is believed that an estimate of a million large shade trees severely injured by the storm is conservative and possibly much below the actual number. The loss on the trees can be approximated only in monetary terms. It probably exceeds $100,000,000 and is possibly more than twice that amount."

Big Returns

(*Continued from page* 499)

ments and carefully changes his cutting and sawing policies to meet the need. Slab wood and fuel wood are sold at an equivalent price of $12 a thousand board feet. The spruce lumber sells on an average of about $55.50 a thousand board feet. Most of it is cut into twenty-four millimeters in thickness, which is slightly less than our inch lumber.

The only income of this family has been derived from the production, manufacture, and sale of forest products from this comparatively small forest — a forest about the size of many farm woodlots and similar small timber tracts in the eastern and southern United States. It may be that in the future we in this country can expect to do the same things. Timber products are worth more in Europe than in this country, it is true, but the chances are that economic conditions will change so that our forests will ultimately become of much greater value than at present.

ROADSIDE CONFERENCE

The National Roadside Council, the Conservation Committee of the Garden Club of America, and the American Planning and Civic Association will hold a joint conference on roadside improvement on November 15 and 16 in New York City. The meeting is planned to serve groups of people who will sponsor roadside improvement legislation in the 1939 sessions of the state legislatures.

Subjects to be discussed are: Organized programs to conserve the roadsides; clear the roadsides in the interest of safety; mobilizing public opinion for roadside improvement; what is happening in the states; and the United States Bureau of Public Roads and Roadside Improvement.

WHO'S WHO

Among the Authors in This Issue

MERRILL BERNARD (*Defeating the Floods by Preparedness*) is Chief of the River and Flood Division, United States Weather Bureau, Washington, D. C. A hydrologist of worldwide note, Mr. Bernard has been responsible for many municipal, drainage, highway and irrigation development projects. Here he deals with the problem of flood control and the essential public service of flood forecasting.

Merrill Bernard

OVID BUTLER (*New England's Storm-Struck Trees*) is Executive Secretary of The American Forestry Association, and Editor of AMERICAN FORESTS Magazine.

HOLLIE LEE MASON (*Storms*) is a lawyer for the Federal Government. Born in a great forest of hardwood and pine in northern Louisiana, he spent his boyhood spearing bull frogs, jumping from cotton mouth moccasins, hunting and fishing—and his hobbies are still the woods, hunting and botany, all closely interwoven into one pattern.

NELSON C. BROWN (*Big Returns from Little Forests*) is one of America's leading foresters. He is in charge of the Department of Forest Utilization at the New York State College of Forestry at Syracuse, and has written extensively on phases of professional forestry. His latest book is "Timber Products and Industries," and his "Elements of Forestry," always one of the most popular of forestry books, has now been completely revised.

LEO A. LUTTRINGER, JR. (*Dramas of the Wild*) wildlife specialist with the State Game Commission of Pennsylvania, is already well known to the readers of AMERICAN FORESTS. Here he tells, with an understanding born of familiarity, a dramatic story of wildlife.

GEORGE T. SPRINGER (*Log Birling Today*) was once a lumberjack in Michigan and Minnesota. Although he now finds his muscles a little stiff for strenuous log birling, it is still his favorite sport, and he is president of the Escanaba, Michigan, Roleo Association.

G. H. COLLINGWOOD (*Western Juniper* and *Wallace Reorganizes*) is Forester for The American Forestry Association.

THE COVER—Mallards Pitching—Etching No. 19 from "Bishop's Birds," (see page 518) is reproduced through the courtesy of the J. B. Lippincott Company and with the permission of the author and artist, Mr. Arthur A. Bishop.

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Chief Rain in the Face
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Chief Sitting Bull
(1837-1890)
A chief and medicine man of the Dakota Sioux, this famous leader gained great influence among the unruly INDIANS during the Civil War. His refusal to return to the reservation in 1876 led to the campaign in which General George A. Custer and his entire command were killed.

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Chief Red Jacket
(1751-1830)
A Seneca chief, he fought for the British during the Revolution, and was a favorite among the officers, one of whom presented him with a red uniform coat. Under his leadership the Senecas allied themselves with the Americans in the War of 1812.

Chief Tecumseh
(1768-1813)
This Shawnee chief, noted for his power of organization and eloquence as a speaker, was commissioned brigadier general in the British army in the War of 1812. At one time he attempted to combine all Indians from Canada to Florida in a great confederacy to resist the encroachment of the whites.

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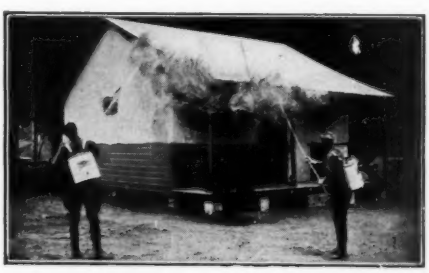
MANY USES

Photo at right shows INDIANS being used to extinguish tent fire. These handy pumps can be employed to excellent advantage in fighting all manner of fires. Their strength and portability make them adaptable to all conditions.



VENTILATED TANK

Regardless of how long the INDIAN is carried, no dampness seeps through against carrier's back. The ventilated tank permits a continuous circulation of air which keeps the back dry and comfortable at all times. The INDIAN carries high on the shoulder—no chafing or rubbing the hips.

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(Top of Page) Dirt fill—handling dirt at twenty cents less per ton over other methods. (Top Above) Handling over 600 tons of rock per 8 hour day with 2 Load-Luggers and W.P.A. labor. (Circle) Passenger Transport Body Attachment accommodates 15 men, and the cost is small. (Bottom) Fast removal of snow from city streets.